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I am submitting herewith a dissertation written by David Anthony Vaccaro entitled " A Comparative Study of Middle School and K-8 School Value-Added Gains in the Areas of Reading, Language, Math, Science and Social Studies." I have examined the final copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Education, with a major in Education.

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A COMPARATIVE STUDY OF MIDDLE SCHOOL AND K-8 SCHOOL VALUE-ADDED GAINS IN THE AREAS OF READING, LANGUAGE, MATH, SCIENCE, AND SOCIAL STUDIES

A Dissertation
Presented for the
Doctor of Education
Degree
The University of Tennessee

David Anthony Vaccaro
May 2000

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DEDICATION

This dissertation is dedicated to my wife, Pattie Ragsdale, my children, Stephen and Stephanie, and my stepson, David. They have been my joy as I've traveled through this life. Together, they have given my life greater meaning and much laughter and love.

I also dedicate this work to my father, James G. Vaccaro and my brother, Jim Vaccaro who both passed away recently. I miss the two of them very much.

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ABSTRACT

This study examined the impact of middle schools organization versus K-8 schools organization on achievement using a type of measure which is intended to take differences in ability of students into account. One purpose of the study was to determine if performance, as indicated by the Tennessee Value Added Assessment System 1997-99 mean gains, was different for students enrolled in K-8 schools in the East Tennessee Region than it was for those enrolled in middle schools. Another purpose was to determine to what degree, if at all, both differences and similarities of performance were related to the grade configuration of the schools.

The researcher utilized data from 119 schools, a total of 57 middle schools and 62 K-8 schools from the East Tennessee Region. The schools were representative of a range of school settings which included urban, suburban, small town, and rural areas. The study included both county school systems and city school systems.

This was a population study of all middle schools and all K-8 schools in the East Tennessee Region (those with sixth, seventh, and eighth grades) over a three year period, 1997 through 1999.

Data were obtained from the Tennessee Department of Education and consisted of Report Card Supplements from 32 school systems, representing the East Tennessee Regional Office. Data from each K-8 school and middle school were processed using the SPSS statistical program. These data were analyzed in order to determine the effect

sizes. Selection of effect size, as a basis of comparison, was deemed to be an appropriate statistical measure since this was a population study. Each effect size was determined by subtracting the middle school mean gain from the K-8 school mean gain and then dividing the difference by the middle school standard deviation. An effect size of .5 and above was considered to have a large educational significance.

The four large effect sizes which were considered to be educationally significant were found in the following four areas: 1) a large effect size favored middle schools in seventh grade math, 2) a large effect size favored middle schools in seventh grade science, 3) a large effect size favored K-8 schools in eighth grade reading, and 4) a large effect size favored K-8 schools in sixth grade reading. Seven moderate effect sizes were also found.

The researcher drew the following conclusions from the data:

- A K-8 organizational structure is more appropriate than a 6-8 structure for sixth grade.
- A 7-8 middle school organizational structure is more appropriate than a K-8 structure for seventh grade.
- One cannot say that either K-8 or middle school (6-8) configuration is best for all students.
- Factors other than grade configuration may have a relationship on whether schools were higher or lower gain schools.

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CHAPTER I.

INTRODUCTION

> Since World War II we have been segregating young adolescents, first into junior high schools, and more recently in middle schools. These schools have often had difficulty defining a distinct mission, one separate from the elementary schools these students have left and the high schools they will enter. Even the names—middle school, junior high school—suggest unclear purposes (Graves, 1997).

Introduction

From the beginning, American schools have dealt with frequent change. American schools started as church schools conducted in individual homes. Some schools had a whipping post for children to "literally beat the devil out of them." Others were not so harsh, but they did include physical punishment for those students who did not know their lessons.

As schools evolved and the public began to support the idea of public education, grade configurations evolved as well. One-room school houses evolved into grammar schools and high schools. This trend lasted until the emergence of the junior high school in the 1920's which took grades seven and eight away from the grammar schools and grade nine away from the high schools. As junior high schools came under criticism of

being too subject oriented and not enough student oriented, the middle school was advanced as an alternative (Lounsbury, 1996).

With the emergence of the middle school in the 1960's, school systems slowly replaced junior highs with the new middle school alternative. This has been a growing trend in the United States. By 1993, there were approximately three middle schools for every junior high in the United States (Pardini, 1998).

Advocates argue that middle schools have significant advantages over junior high schools. For one thing, they offer a very unique environment where ten-to-thirteen-year olds are free to grow up at their own rates and where attention is focused on the needs of this age group rather than on mimicking the high school's emphasis on academic and sports competition, as is often the case with junior high schools (Ryan and Cooper, 1998).

However, the Cincinnati Public Schools have taken a radically different approach. The Cincinnati Public Schools are changing from middle schools back to K-8 schools. Superintendent Brandt explained that statistics from the district's former Pilot Mini District show that seventh and eighth grade students in K-8 schools experience fewer discipline problems, have better attendance, and have more eighth graders passing the Ninth-Grade Proficiency Test than their middle school counterparts (www.cpsboe,1997).

Value Added Assessment

Value Added Assessment has been new way to report or determine achievement gains of a particular school system, a school, a grade level, and a subject area. Ever since 1992, the Tennessee Value Added Assessment System has been an important component of the achievement testing in Tennessee. Value added assessment is a statistical procedure for

measuring the impact ("effect") of different factors on student achievement (learning) across time. The "value added" is that amount of impact that can be accounted for and credited to the various influences on the student. The Tennessee Comprehensive Assessment Program tests five subjects. They are: reading, language arts, mathematics, science, and social studies. Students are tested in grades 2 through 8. TVAAS provides mean scale scores and mean gains, as well as standard error of measurement for both. It is critical to understand that these scores have been statistically adjusted using a mixed-model method that corrects for various external factors. In particular, the scale scores have been adjusted to account for transient students, or for students simply having missed a testing cycle. The gain scores have been analyzed longitudinally; this analysis allows the gains to be adjusted in such a way as to remove socioeconomic and other factors, permitting direct, meaningful comparison of schools (Paul, et al, 1997).

The Tennessee Value Added Assessment System has been designed to measure students' academic gains over time. An assumption in the design of this system is that all students can improve academically each year at the same rate as all other students. Imagine a child climbing a ladder. Each successive rung represents higher academic achievement. Regardless of which rung the student stands on at the end of the one year, his or her goal should be to climb at least as many rungs the next year as the average student climbs (TN Ed. Report Card, 1998).

Statement of the Problem

The problem investigated in this study was whether students in middle schools make greater academic gains than students in K-8 schools. Since school improvement practices should be based on objective evidence, it seems imperative for school administrators, superintendents, and school boards to know whether a particular grade span is connected to greater academic gains or not. The literature showed mixed results in grade configuration comparisons. However, no comparisons of K-8 schools and middle schools, based on value-added assessment, were found in the literature; this fact alone appeared to warrant investigative research.

Purpose of the Study

One purpose of this study was to determine if performance, as indicated by the Tennessee Value Added Assessment System 1997-99 mean gains, was different for students enrolled in K-8 schools in the East Tennessee Region than it was for those enrolled in middle schools. Another purpose was to determine to what degree, if at all, both differences and similarities of performance were related to the grade configuration of the schools. The researcher was looking for educational significance rather than statistical significance. Statistical significance which is concerned with probability was inappropriate because 100% of the population results are already known. Determinations were based on analysis of available school data related to the entire population in the East Tennessee Region, 33 school systems surrounding the Knoxville area, and a sample of twelve follow-

up phone interviews with school principals from that population.

Research Questions

In order to achieve the purposes of this study, the researcher created a set of three broad research questions.

Question 1: *What, if any, relationship exists between grade configurations of schools (K-8 schools, 6-8 middle schools) in the East Tennessee Region and the average academic gains of students, as measured by the Tennessee Value-Added Assessment System (TVAAS)?*

Question 2: *What, if any, relationship exists between grade configuration of schools (K-8 schools, 6-8 middle schools) in the East Tennessee Region and school achievement of USA Norm Gains, as measured by TVAAS?*

Question 3: *In the East Tennessee Region, do principals of higher gain and lower gain schools perceive their schools differently? If so, what are those differences?*

Need for the Study

The literature evaluating test performance for students consisted mainly of achievement test studies making grade configuration comparisons based on scale scores, stanines, and percentiles. The development of the value added process which measures student gains, from one year to the next year, presented a very different basis for comparison. This was the first study to use value added assessment to compare academic gains of middle schools students and K-8 schools. This study was important in defining the relationship between grade configuration, how schools are organized, and value added assessment.

Academic gains appear to offer several advantages as indicators of school success

which make them more favorable as a basis for looking at effectiveness of schools than scale scores, stanines, or percentiles. According to Sanders and Horn (1992) the use of TVAAS academic gains, factors such as ability bias and socioeconomic bias are almost completely eliminated. It logically follows that TVAAS allowed for a more equitable comparison of student progress. A process which allows for such differences has long been needed for educational progress and for research. With value added assessment, schools and grade configurations can be compared more fairly than they were by other methods used in the past (Paul, et al, 1997).

In Tennessee, there were seven years of data available to educators on value added gains. Since the middle school concept was now being questioned for its effectiveness, the time had come to investigate whether academic gains were greater in middle schools or K-8 schools. Findings and conclusions from this study, whether they support or do not support the middle school configuration in the East Tennessee Region, will be useful to school planners, school superintendents, and school boards who will be considering what works best in the way of grade configurations for the future. This study will also be useful to other researchers studying grade configuration because it adds a new investigative area, value added assessment. This new area may provide more meaningful grade configuration comparisons.

Limitations

1. The study was limited to the Tennessee Value Added Assessment System data reported on the 1998-1999 school year Report Card Supplements.

2. The middle schools and K-8 schools in this study from the East Tennessee Region may or may not be representative of the total population of middle schools and K-8 schools.

3. The extent to which the principals give honest responses to the qualitative questions may be another limitation.

Delimitations

1. This study was delimited to the data offered by the Tennessee Value-Added Assessment System (TVAAS) and other data related to school success were not part of this study.

2. Only middle schools and K-8 schools within the East Tennessee Region, as defined by the State Department of Education, were included in this study.

3. The study was delimited to this region (Appendix A) because of the ample number of K-8 schools and middle schools in operation there.

4. In this population study, all 62 K-8 schools and all 57 middle schools from the East Tennessee Region were included.

5. The study was further delimited to comparisons of the 1997-99 mean gains from both middle schools and K-8 schools in five subject areas at three grade levels.

6. Information obtained from principals was delimited to a single set of questions related to TVAAS and other information provided in a fifteen minute phone interview.

Assumptions

1. This study was based on the assumption that value-added assessment data were appropriate measures for comparing academic achievement of middle schools and K-8 schools.

2. It was further assumed that the same kind and quality of curriculum and instruction was present in both groups of schools.

3. In regard to principal interviews, it was assumed that the principals would give honest responses and that they would feel assured that their responses would be kept confidential and anonymous.

Definition of Terms

Deviation: The difference between USA Norm Gain and the estimated gain for a particular year and grade level.

East Tennessee Region: The East Tennessee Region, as defined by the State Department of Education Office, consists of 33 school systems surrounding the greater Knoxville area. Within the East Tennessee Region, there were 62 K-8 schools and 57 middle schools.

Educational Significance: Educational significance means a judgment by experts in the field as to whether the magnitude of observations are sufficient to justify educational decisions (Dessart, 2000). It is often used in a population study when 100% of the results are known and when probability is not a concern. In this study, an effect size of .5 or more represents a large educational significance while .3 to .5 represents a moderate one.

Effect Size: Effect Size (ES) indicates the number of standard deviations by which two groups differ. To calculate the ES, subtract the mean of the control group from the mean of the experimental group to determine the mean difference and divide this difference by the standard deviation of the control group.

Est. Gain (estimated gain): The one year change in estimated mean scale scores from one grade level to the next.

Estimated Mean: Produced from mixed model equations which utilize all of the

information available for each student (over subject and grades) to produce a better estimation of the mean of a group of students than simple arithmetic averages.

Grade Configuration: A school's grade span such as middle school with grades 6, 7, and 8 or an elementary school with grades K-8.

K-8 School: A school that contains all of the following grades, but no grade above ninth: kindergarten, first, second, third, fourth, fifth, sixth, seventh, and eighth. It does not include alternate schools.

Middle School: A school that is specifically called a "middle school" and contains all of the following grades, but no grade above eighth or any grade below fourth: sixth, seventh, and eighth. It does not include alternate schools or special schools for the deaf.

Population Study: A study that involves the entire group of objects or people about which information is wanted.

Scale Scores: Equal-interval scores that span all grade levels, making them useful for measuring year-to-year growth. Scale scores range from 0 to 999 but are unique to each student.

Standard Deviation: The most common measure of the spread of a distribution. It is the positive square root of the variance.

3-Yr. Avg. Gain (three year average gain): The simple arithmetic average of 3 consecutive year estimated gains within the same grade level.

3-Yr. Avg. Mean: This simple arithmetic average of 3 consecutive year estimated means within the same grade level.

USA Norm Gain: The arithmetic difference between USA norm means across

consecutive grade levels.

USA Norm Mean (Expected Gain): Statistics that supply a reference by which meaning may be given to obtained scale scores. Norms are based upon the actual performance of pupils in various grades and subject areas in the standardization group for the test.

Value-Added Assessment: A statistical procedure for measuring the impact ("effect") of different factors on student achievement (learning) across time. The "value added" is that amount (Anderson County Report Card Supplement, 1999).

Theoretical Framework

This study was based on the theory that a major school system, Cincinnati Public Schools, may be right in challenging the conventional wisdom of middle schools and returning to K-8 schools. Thus, they created a beginning school (K-8) and an ending school (high school) with no school in between. Their research conducted in a pilot study, showed that seventh and eighth graders in a K-8 setting did better in attendance, behavior, and achievement than their middle school counterparts (www.cpsboe,1997).

The researcher found, in a pilot study of three East Tennessee county school systems, that K-8 students performed better than middle school students in 11 of 15 categories (Vaccaro, 1997).

CHAPTER II.

REVIEW OF THE LITERATURE

One purpose of this study was to determine if performance, as indicated by the Tennessee Value Added Assessment System 1997-99 mean gains, was different for students enrolled in K-8 schools in the East Tennessee Region than it was for those enrolled in middle schools. Another purpose was to determine to what degree, if at all, both differences and similarities of performance were related to the grade configuration of the schools.

This chapter reviewed the research related to the purposes of the study. The most important areas were: state testing programs, value-added assessments, and studies on grade configuration. The researcher examined states, other than Tennessee, looking for trends regarding statewide testing. This examination of testing programs revealed a broad national trend in statewide testing. In addition, the researcher included research related to the concept of value-added assessment. Value-added assessment was the main component used, in the comparison of schools, in this study. Critics and proponents of value-added assessment were included in this review. Finally, grade configuration was included because most studies in school achievement were closely connected to it. The researcher wanted to examine the relationship between school achievement and grade configuration.

State Testing Programs

Since World War II, state testing programs have been used throughout the United States. Testing has been used to answer questions by legislators and the public concerning school accountability. By 1999, 48 states administered statewide exams (Education Week's Quality Counts, 1999). Iowa and Nebraska have not required statewide exams. The primary purpose of state testing programs has been to evaluate the extent of learning of the students taking the tests. As early as 1988, West Virginia initiated the Learning Outcomes Testing Program (LOTP) to measure student progress toward mastery learning outcomes established by the state (Willis, 1988). The LOTP, a standardized test, has a criterion reference base.

In 1990 and thereafter, the Tennessee Comprehensive Assessment Program (TCAP) was given each spring to students in grades two through eight. Recently, some high school subjects have been included in the annual testing. Since 1992, the Tennessee Value-Added Assessment System (TVAAS) has been used to derive estimated gains of student performance. According to Sanders (1994),

> "It is important to note that TVAAS is a mixed-model methodology. TVAAS is a statistical process measuring the influence which school systems, schools, and teachers have on indicators of student learning. Initially, TVAAS will furnish information at the system level for grades three through eight in math, science, reading, language, and social studies."

Different testing methods have been used in other states. Hoff (1997) described the Minnesota's use of the Third International Mathematics and Science Tests.

"When Minnesota recently learned how its students compared with the rest of the

world in math and science, the state's leaders began to discuss changes that were required." The results of the state's scores on a version of the Third International Mathematics and Science Study, showed that eighth graders in Minnesota ranked higher in science achievement than all but 5 of 41 nations that took the test.

As early as 1991, the Oregon Statewide Assessment was given to all public school students in grades 3,4,8, and 11. The emphasis has been on the assessment of skill levels and curriculum evaluation, but the tests have not been strictly "competency tests." No passing scores have been implemented (Roid, 1991).

In Kentucky, the Kentucky Education Reform Act (KERA) was passed in 1990. KERA revamped virtually every aspect of education in Kentucky, including school finance, curriculum, and governance, it has been carefully examined by educators all over the world (Kentucky Story, 2000). Kentucky has a new statewide testing program, the Commonwealth Accountability Testing System (CATS). The test began in the spring of 1999 at various grade levels in elementary, middle, and high school. Scores have been used to measure how much progress schools have made in educating their students in academics, the arts, and vocational areas.

Almost every state has a mandate for statewide testing though they vary in form and content across the nation. Testing has been used for several reasons which include: to measure individual achievement; to measure group or school achievement; for diagnostic purposes; and to answer questions concerning school system, school, and teacher accountability.

Value-Added Assessments

As the term has been used in Tennessee, value-added simply means the academic gain or loss that occurred from one year to the next in a student's scale scores on achievement tests. For example, a student who scored 620 this year and 600 last year, on scale scores, gained 20 points. The learning (value-added) gain was 20 points.

Value-added Assessment has not been confined to Tennessee. In Great Britain, Sir Rhodes Boyson, the former British schools minister, indicated his support for value-added tables. He has believed that the tables would help the government win professional support for its testing policies, rebuild morale that was damaged during the introduction of the national curriculum, and give proper recognition to teachers who do a good job in urban schools" (Sutcliffe, 1995).

In 1996, it did not appear possible to implement value-added assessment for the primary schools in Great Britain for a long time. Numerous complaints had been made by primary-school principals who criticized the results of the national curriculum tests for 11-year-olds. Serious anomalies were found in the unrealistic scores for special needs children, distorted math scores, and science papers. However, it was believed that secondary schools might be able to adopt value-added measures (Rafferty, 1996).

In an article entitled "The Approaching Value-Added Education," Swope (1994) stated that in order to accommodate the future, it will be necessary for universities to provide value-added education, create a value added community, and encourage scholarship according to new criteria. At Northeast Missouri State University, value-

added has been used to assess business education (Osigweh, 1985). NMSU has a value-added assessment program whereby students are tested as incoming students, again as sophomores and as seniors (McClain, 1987). All public colleges and universities in Tennessee have been evaluated and funded using a value-added assessment model for more than a decade.

In Tennessee, The Tennessee Value-Added Assessment System for K-12 schools has been mandated by the Education Improvement Act (EIA) of 1992. TVAAS was based upon the work completed by Dr. William L. Sanders and Dr. Robert A. McLean using data from second through sixth grade students from three systems: Knox County, Blount County, and Chattanooga City. Their studies utilized 65,000+ student records and resulted in six primary findings:

1. There were measurable differences among schools and teachers with regard to their effect on indicators of student learning.
2. The estimates of school and teacher effects tended to be consistent from one year to the next.
3. Teacher effects were not site specific, i.e., a gain score could not be predicted by simply knowing the location of the school.
4. Student gains were not related to the ability or achievement levels of the students when they entered the classroom.
5. The estimate of school effects was not related to the racial composition of the student body.
6. There was very strong correlation between teacher effects as determined by the data

and subjective evaluations by principals and supervisors (Sanders and Horn, 1992).

Since 1990, the TCAP tests have been given to Tennessee students in grades 2 through 8. The five subjects that have been included in the testing were: reading, language arts, mathematics, science, and social studies. TVAAS was initiated in 1992, and it has provided mean scale scores and mean gains, as well as standard error of measurement. These scores have been statistically adjusted using a mixed-model method that corrects for various external factors. In particular, the scale scores have been adjusted to account for transient students, or for students simply having missed a testing cycle. The gain scores have been analyzed longitudinally, using each student's performance in previous years (including performance at other schools) as a control. This analysis allows the gains to be adjusted to remove socioeconomic and other factors, permitting direct, meaningful comparison of schools (Paul, et al, 1997).

For the purposes of this study, the use of value-added assessment provided a way to compare middle schools and K-8 schools without concerns for equity in ability, race, and school location. According to Sanders and McLean (1992), the use of TVAAS demonstrated that there were measurable differences among schools and teachers regarding their effect on indicators of student learning and a gain score could not be predicted by simply knowing the location of the school. In addition, student gains were not related to the ability or achievement level of the students when they entered the classroom. Furthermore, the estimate of school effects was not related to the racial composition of the school. On the basis of these findings, the K-8 school and the middle school mean gains could be compared fairly without having to adjust for ability, race, and

location. The TVAAS scores had already been statistically adjusted for those potential influences.

Critics and Proponents of TVAAS

According to the TEA News (August, 1997), the Tennessee Value-Added Assessment System has had its share of critics and proponents. Many Tennessee educators have been critical of the TVAAS Program. Even the State Commissioner of Education, Dr. Jane Walters asked the Legislature for some "needed changes" (TEA News, 1997).

"Two outspoken advocates of the Sanders Model have accused state Education Commissioner Jane Walters of plotting to undermine the value-added system developed by the University of Tennessee statistician William Sanders." David Coffey, a former State Representative and Dr. J.E. Stone, a professor at East Tennessee State University, both claimed that Walters tried to weaken the TVAAS testing program (TEA News, 1997).

Tennessee educators have expressed their concern over the use of TVAAS as an accountability system. Young (1996) studied the perceptions of Tennessee teachers, principals, and superintendents regarding the impact of the high-stakes Tennessee Value-Added Assessment System. Tennessee teachers, principals, and superintendents have been subjected to accountability from the testing program. He found that most educators surveyed did not support the Value-Added Assessment System. Eighty-five percent of the 676 educators surveyed felt that the system was not an effective means of showing teacher effect on student learning.

The Tennessee Value-Added Assessment System has had at least one media

proponent. *USA Today* (TEA News, August, 1999) editorially endorsed performance pay for teachers, suggesting that the Sanders Model could be used to determine teacher performance. The national newspaper stated, "Not all teachers deserve the same pay because not all teachers are equal, and new technology is emerging that can identify the relative effectiveness of teachers." A promising tool for rating teachers, the editorial suggested was the "value added" system developed by William Sanders, a University of Tennessee statistician, which rates teachers based on students' annual gains in achievement test scores (TEA News, August 1999).

One of the strongest endorsements for the Sanders Model came from professor Cooper, at the Fordham University Graduate School of Education. As stated in the Knoxville New-Sentinel (November 22, 1998), "Tennessee is light years ahead of the rest of the country," said Cooper. "I've studied the whole world. I think it's one of the best systems in the whole world, not just the United States." Sanders' system measures students' academic gains from year to year, not students' raw scores alone. That holds schools accountable for assuring that every child learns. High-scoring schools can't rest on their laurels. Low-scoring schools can't blame poverty or a bad neighborhood.

Tennessee public school students learned at a pace slightly above their peers nationwide according to the Tennessee Comprehensive Assessment Program test results released on August 12, 1999. Tennessee students scored just below the national averages in one reading and three social studies categories. With 50 as the national midpoint, the average percentile scores for Tennessee students ranged from 48 in eighth grade reading to a high of 62 in third grade language (The Oak Ridger, August 13, 1999).

Grade Configuration

What has been the best grade configuration for K-12 schooling? Has it been an elementary school, followed by a middle school, followed by a four-year high school? Have there been advantages to a K-8 school, followed by a four-year high school? (Paglin and Fager, 1997) These questions have been asked many, many times since 1900. Many of the studies over the last thirty years have attempted to address those questions. Yet, there have not been any definitive answers to those questions. This study attempted to answer these questions. As recently as 1998, middle schools have been under attack and have been accused of lacking academic rigor. The following excerpt illustrated some of the sharp criticism being directed at middle schools.

> In the words of Marc S. Tucker and Judy B. Codding, authors of the new book, *Standards For Our Schools,* middle schools are no less than "the wasteland of our primary and secondary landscape" (Pardini, 1998).

Climate and Perception Studies

Mead, as early as 1965, claimed that segregating pre-adolescents by placing them in intermediate (middle) schools divorces them from the reassurances and the security that are inherent in a continuing association with children like their own recent past selves. Research during that same period seemed to support that contention. Wattenburg (1967) claimed that there was no evidence to show that pupils who go through a system with a separate intermediate (middle) school level differ in any way from those who go through a two-level system. Chellew, Baker, Baker, Dimitri, and Johnson (1973) performed a comprehensive review of studies on intermediate (middle) schools. They concluded that

the research failed to demonstrate that intermediate (middle) schools are superior to K-8 schools in terms of either achievement or student self-perception.

Soares and Pumerantz (1973) found similar results to those of Mead. They suggested that intermediate (middle) schools may be less desirable than traditional K-8 schools. "Traditional schools are more likely to be neighborhood schools, while middle schools draw from many sections of the city. Continuity and security emanating from the known and the familiar are generally more conducive to higher self-perceptions."

O'Reilly (1980) compared grade 8 students in intermediate students (middle school), and K-8 students from 20 schools in Eastern Ontario. The involvement in school activities of grade 8 pupils from ten K-8 schools was compared to those from ten intermediate (middle) schools. A student involvement survey instrument developed for the study yielded a test retest correlation of .94. Almost 600 students participated in the study. He found grade 8 students who attended K-8 schools were more involved with school activities and assume greater responsibility for those activities. Concerning student involvement, O'Reilly concluded that K-8 schools apparently serve the needs of young adolescents better than intermediate schools.

McDade (1982) studied perceptions of Catholic elementary school principals and sixth, seventh, and eighth grade teachers in the Archdiocese of Newark, New Jersey, as to which school organization (K-8, 7-8, 6-8, 5-8) would best serve the needs of students in grades six, seven, and eight. 753 principals and teachers, representing 194 schools, responded to his survey. He found, among other things, that attitudes toward middle school were mixed and that K-8 was still the preferred single grade organization.

Epstein (1990) asked some central questions as to grade configurations. "Which grade span is best for educating early adolescents? Is grade span the most important issue for middle-grade reform, or is it a distraction from more important and more difficult issues? With the information available at this time, no one can say unequivocally that one particular grade span or program is 'best' for all middle-grade schools in the U.S."

Katz (1995) examined middle school and traditional intermediate schools. She studied self-concept among students attending middle schools and students attending traditional intermediate schools in Connecticut. This study was concerned with the relationship among school organization, student achievement, and student gender with respect to self-concept. One hundred twenty students participated in this study. Sixty eighth grade students were from middle school and sixty eighth grade students were from traditional intermediate school. Katz found that students attending traditional intermediate schools scored higher in total behavior, intellectual and school status, anxiety (less anxiety), popularity, and happiness self concepts than middle school students.

Spirito (1996) studied how grade configuration impacts on the organizational culture of grade 7 and 8 from the teachers' perspective. The types of grade configurations studied were from K-8, 6-7-8, and 7-12. Data were collected from six schools; two K-8 schools, two middle schools (6-7-8), and two 7-12 schools were studied using a questionnaire, observations, and interviews. The results of the New Jersey study suggested that the grade configuration does not impact the culture of seventh and eighth teachers.

However, it has been more informative for researchers to compare both teachers'

perceptions of school setting or grade span configuration and students' perception of school setting or grade span configuration. McClung's (1995) study was an example of the two groups perceptions of school setting. The purpose of his study was to explore the relationship between grade organization and school climate, grade organization and teacher satisfaction, and grade organization and student outcomes. He studied K-8 and middle schools in Northeast Mississippi. The results of this study, as Spirito found, indicated no difference between K-8 and middle schools in teachers' perceptions of school climate and satisfaction. However, results did reveal a significant difference between K-8 and middle school students' perceptions of school climate and student satisfaction. The findings revealed K-8 students had more favorable perceptions of school climate and were more satisfied. There were no significant differences between K-8 and middle schools in achievement, discipline, self-efficacy, and school year completion.

Achievement Studies

Is it possible that the existing middle school structure has not been the best academic performance setting for sixth, seventh, and eighth graders? Is it possible that educators have been caught up in trends and changes without any significant evidence or empirical data to base their decision to engage in such changes concerning school grade configuration? Pugh (1988) conducted a literature review which suggested no definitive research findings on the merits of middle schools over junior high schools. He concluded that a public school's decision to convert to middle schools would not be valid based solely on the literature.

Moore (1983) found that there were significant differences, at the .01 level, between

the mean scores of K-8 students and Junior High Students in New York in these five areas: reading, positive attitude toward school, self-esteem, perceptions of teacher control behavior, and attendance. All five variables were favorable to the K-8 schools. The data came from 1,409 in the seventh and eighth grades of nine K-8 schools and nine junior high schools in New York City. Moore concluded that the K-8 School ought to be considered when decisions are made about the best school setting for early adolescents.

Lawrence (1989) found results different from those of Moore. He studied eighth grade student performance in two school organization patterns. The subjects consisted of 75 eighth grade students from seven K-8 schools and 192 eighth grade students from ten middle schools enrolled in the Milwaukee Public School System. Although, K-8 students had higher reading and mathematics achievement mean scores as measured by the Iowa Tests of Basic Skills, he concluded that there were mixed results as to the impact of the K-8 and middle school organizational patterns on student achievement, self-concept, and attitude toward school.

Manchester (1991) found results similar to those of Lawerence. The study, conducted in California, included a total of 525 eighth grade students, 161 suburban middle school students, 162 suburban K-8 students, 102 urban middle school students, and 100 urban K-8 school students. Her study of Catholic K-8 schools and Catholic middle schools in the areas of reading, self-esteem, and attitude toward school did not indicate that one grade level configuration was more advantageous than another in any of the three areas studied. The significantly higher scores of both K-8 school and middle school urban students on the Quality of School Life and all three subscales is affirming of

the job being done by the Catholic School in the urban area.

Montoya (1990) examined the relationship of middle school climate to academic achievement. The participants were members of eight sixth grade classes; four classes were from elementary settings and four classes were from middle school settings. Entered into the correlational analyses were: mathematics, reading, and overall sores on the California Test of Basic Skills, and school climate perception scores in the areas of satisfaction, cohesiveness, friction, difficulty, and competition. The findings revealed that elementary and middle school students perceived school climate at essentially the same levels. There were no linear relationships between students perceptions of school climate and their academic achievement. Middle school students' perceptions of cohesiveness and mathematics, perceptions of reading and satisfaction, and total battery scores and cohesiveness were significantly and positively correlated. Differences on the scales of cohesiveness and satisfaction indicated that the middle school climate was more positive than that of elementary schools.

However, findings of other studies suggested that some middle-level students benefited significantly from an elementary setting rather than middle school setting. In a study of 8,000 Pennsylvania sixth graders, aimed at determining the extent to which different middle grade configurations affect academic learning for students with different abilities and socioeconomic status, Becker (1987) found that sixth grade students experienced school under a variety of organizational structures, from highly tracked, highly departmentalized middle schools to self-contained, heterogeneous elementary classrooms. He concluded that elementary school settings benefit students from low

social backgrounds (especially in reading), as does having instruction provided by a limited number of teachers.

Williams (1999) found results similar to those of Becker concerning achievement and a limited number of teachers. He studied the transition of sixth grade students from the self-contained classroom of the elementary school to the more complicated setting of the middle school. Williams found that students who were assigned to two-teacher teams demonstrated higher student achievement than those assigned to teams of four teachers.

Wihry and others (1992) studied the performance of eighth grade students on standardized tests, especially in reading achievement, in 163 Maine schools. They found that reading achievement was highest in elementary settings (K-8, K-9, 3-8) and lowest in junior-senior high school settings (6-12, 7-12, 8-12), when socioeconomic status and teacher experience were controlled.

Changes in demographics during the 1970's and 1980's have altered the grade configuration of schools. DeYoung, Howley, and Theobald (1995) suggested that, at least in rural areas, small K-8 schools are disappearing as a result of the construction of consolidated middle schools.

Franklin and Glascock (1996) examined the relationship between a school's grade configuration and student performance in Louisiana. Elementary schools, middle schools, secondary schools, and combination (K-12) schools were examined using grade-level data for grades 6, 7 and 9-12. The participating sixth-and-seventh-grade students performed better in elementary and K-12 schools than participating students in middle schools or secondary schools, in terms of achievement and persistence. Students in K-12 schools

performed as well as those in elementary schools overall and performed better in some cases, grade 6 and high poverty.

Cox (1996) compared school grade span configurations and mathematics achievement of eighth grade students in Mississippi. These grade spans included K-8 schools, K-12 schools, 5-8 schools and 7-12 schools. One hundred thirty-five school districts were included in this study which accounted for 197 schools.. He found a significant difference between the school grade span configurations on the criterion variable of mathematics achievement. The study determined that there was a significant difference between the school grade span configurations on the criterion variable of mathematics achievement. The study also determined that there was a significant difference between the grade spans of 7-12 and 5-8, with the higher mean of mathematics achievement occurring at the 5-8 grade span.

Tucker (1997) studied K-5 elementary schools (Type I) and K-6 and K-8 elementary schools (Type II) in Connecticut. The relationship between this school-level accountability and the sixth-grade performance of students was examined using multivariate analysis of covariance (MANCOVA). Two different models were used to compare the sixth-grade achievement of students who attended Type I and Type II schools in grade 5, removing the effect of fourth grade performance. Consistent results showed that schools that expected to be accountable for sixth grade results (Type II) produced better performing sixth graders.

Alspaugh (1998) studied the nature of achievement loss associated with school-to-school transitions from elementary school to middle school and to high school. The

researcher compared three groups of 16 school districts in Missouri. A significant achievement loss associated with the transition from elementary school to middle school at 6th grade was found, as compared with K-8 schools that did not have a school-to-school transition at 6th grade. The achievement loss in the transition to high school was larger for middle school students than for K-8 elementary students. High school dropout rates were higher for districts with Grade 6-8 middle schools than for districts with K-8 elementary schools. The findings imply that students placed in relatively small cohort groups for long spans of time tend to experience more desirable educational outcomes.

According to Jenkins and McEwin (1992), research has not provided definitive answers to the many possible questions about grade span, but the questions have never gone away. They are questions that arise whenever school reform, increasing or declining enrollment, or financial considerations bring about a reorganization of existing schools, the building of new schools, or consideration of districts. As one article on the subject puts it, "Grade organization remains a controversial topic in American education as it has for at least 80 years."

While research has not provided a definitive answer to the many questions about grade span, there has been a growing body of research that suggests middle level students do better in K-8 schools than in other grade configurations. Future trends indicate that K-8 schools may be given stronger consideration, from school districts, than in past years.

Trends

What have been the trends? Anecdotal evidence indicated some districts and experts have taken a second look at the K-8 and "elemiddle" configuration, the latter defined as a

school that meets the needs of young adolescents but includes lower grades. Schools that have included both primary and middle grades may have been better for preadolescents than middle schools or junior high schools.

A California study of middle-level school programs and organizations (Hough, 1989) identified significant differences in programs, policies, and practices among junior high, middle, and elemiddle schools. In a follow-up to that study, data from 771 school principals, counselors, and English/language arts teachers indicated that K-8 schools made significantly greater use of such middle level policies and practices such as interdisciplinary teaching teams, peer tutoring, cross-age tutoring, flexible scheduling, and exploratory programs than did middle schools (6-8 or 7-8) or junior high schools (7-9).

One trend has been the "elemiddle" school. In Huntsville, Tennessee, the local middle school changed to an elementary/middle school in 1997. It changed its name to Huntsville Elementary/Middle School which educates students from kindergarten through eighth grade (The Scott County Report Card Supplement, 1999).

Another K-8 trend that has been growing is the charter school movement. According to the U.S. Department of Education funded studies, charter schools tended to have very different grade configurations from other public schools, such as kindergarten through grade 12, kindergarten through grade 8, and ungraded schools (RPP International, 1998). Since Minnesota passed the first charter school law in 1991, 32 other states have passed similar legislation (Hirsch, 1998). Charter schools have grown in number since their beginning in 1991. The Center for Education Reform (1998) estimated that 1,129 charter

schools existed nationwide in September 1998. Most schools were in the South and West. As the charter school movement has grown, the number of K-8 schools has increased in America.

Still another trend has involved individual schools changing to K-8 schools. During 1999, in Mt. Juliet, Tennessee, a $5.65 million school was under construction with strong consideration for making it a K-8 school. This new school being built in the Villages of Mt. Juliet neighborhood, was supposed to be the answer to overcrowding issues at the nearby elementary. But a full-to-the-brim Mt. Juliet Junior High School is giving school officials pause as to how to structure the school's student population (The Tennessean, 1998).

In Florida, the Lee County School Board has studied a proposal to expand the existing K-5 school on Sanibel Island into a K-8 school. About 150 islanders came to the September School Board Meeting to show their support for the K-8 proposal. While there was no formal vote, each board member spoke to his/her belief that the expansion was a good idea and should be carried out (www.cyberstreet.com/sanibelk8/progress, 1999).

In Lancaster, Pennsylvania, the Lancaster City School District just became the first district locally to begin full-day kindergarten. Now it has considered another dramatic change, combining middle and elementary students into a school for kindergarten through eighth graders (Lancaster New ERA, 1999).

In Franklin, Tennessee, the Franklin School District decided to increase taxes by 3 cents to make sure there is enough money to open a new K-8 school next summer

(The Tennessean,1999).

The single largest movement away from middle schools to K-8 schools has occurred in Cincinnati, Ohio. The Cincinnati Public Schools Strategic Plan has called for a redistricting of schools to make K-8 and 9-12 the prevalent school organizational structure. In 1997, five schools became K-8. In addition to Westwood, the others were: Cheviot, Central Fairmont, Gamble, and North Fairmont. In total, 17 elementary schools have converted to K-8. And more have been called for in Students First, as the Cincinnati Public Schools move towards using this configuration as the prevalent grade structure. The goal has been to improve academic achievement, boost attendance rates and decrease discipline actions of students at the middle school level. Statistics from the Pilot Mini District K-8 schools showed better attendance rates and fewer discipline actions of seventh and eighth graders as well as more eighth graders passing the Ninth Grade Proficiency Test than their middle school counterparts (www.cpsboe, 1997).

Achievement Patterns

There is disturbing evidence that many students in middle grades are performing below acceptable levels of achievement. For example despite spending more time in class than their peers in most countries, U.S. eighth-graders were in 28th place in math and 17th place in science when compared with students from 41 countries that participated in the Third International Mathematics & Science Study (TIMSS,1997). U.S. fourth-graders placed much higher in international comparisons in both math and science. This has suggested that American students actually lose ground as they move through the middle grades (Pardini, 1998).

Regardless of the studies on grade configuration, test scores have been declining at the middle grades. Therefore, a careful study of grade configuration becomes very important. It may reveal some new information about this complex issue. Grade configuration may be an important component in understanding this downward trend in test scores.

In the National Assessment of Educational Progress (NAEP), a longitudinal study of student achievement, researchers found that 39 percent of eighth-graders taking the 1996 NAEP math test scored below the "basic" level deemed necessary to master high school math. NAEP writing scores at the eighth grade level showed no improvement over the 1984 results, and science scores remained at 1970 levels. Eighty-two percent of eighth-graders in 1996 did not have any detailed scientific knowledge (Pardini, 1998).

Summary

This chapter, presented much of the research literature related to state testing programs, value-added assessments, and grade configurations. State testing programs have existed in 48 states and have been used often for accountability purposes. Value-added assessments have provided researchers with a new testing component that has eliminated equity questions when comparing school gains. Grade configuration studies were discussed and there appears to be a growing body of research which suggests middle level students may perform better in K-8 schools. The key findings in chapter two have been listed below:

1. Chellew and others concluded the research failed to demonstrate that middle schools have been superior to K-8 schools in terms of either achievement or student self-perception.
2. O'Reilly found student involvement was higher in K-8 schools.
3. Moore, Becker, and Wihry concluded K-8 schools were better for middle grade students in achievement, especially in reading.
4. Franklin and Glascock found sixth and seventh graders performed better in achievement and persistence at elementary schools than at middle schools.
5. Becker and Williams found that sixth grade achievement was higher when instruction was provided by a limited number of teachers.
6. Alspaugh reported a significant achievement loss associated with the transition from elementary school to middle school at 6^{th} grade was found, as compared with K-8 schools that did not have a school-to-school transition at 6^{th} grade. The findings imply that students placed in relatively small cohort groups for long spans of time tend to experience more desirable educational outcomes.

In chapter three, the methodology in the study will be presented. It includes: the research questions, the selection of schools, TVAAS data, treatment of data, effect size, educational significance, and how the data sources were used to answer the research questions. The study included both quantitative and qualitative research.

In chapter four, the presentation and data analysis will be discussed. The findings of the study will be reported and discussed. In chapter five, the summary of the study and

the conclusions of the study will be discussed. The implications and recommendations will be reported in this chapter.

CHAPTER III.

METHODS AND PROCEDURES

One purpose of this study was to determine if performance, as indicated by the Tennessee Value Added Assessment System 1997-99 mean gains, was different for students enrolled in K-8 schools in the East Tennessee Region than it was for those enrolled in middle schools. Another purpose was to determine to what degree, if at all, both differences and similarities in performance were related to the grade configuration of the schools.

In chapter two, the research related to state testing programs, value-added assessments, and grade configurations was discussed. State testing programs have existed in 48 states and have been used often for accountability purposes. Value-added assessments in Tennessee and Dallas, Texas have provided researchers with a new testing component that has eliminated equity questions when comparing school gains. Grade configuration studies were discussed, and there appears to be a growing body of research and opinion which suggests middle level students may perform better in K-8 schools.

In chapter three, the research questions are presented. The methodology and a description of the procedures employed are included. Both quantitative and qualitative research methods are utilized in the study.

The research questions listed in the next section are the foundation of this study.

Research Questions

Question 1: *What, if any, relationship exists between grade configurations of schools (K-8 schools, 6-8 middle schools) in the East Tennessee Region and the average academic gains of students, as measured by the Tennessee Value-Added Assessment System (TVAAS)?*

Question 2: *What, if any, relationship exists between grade configuration of schools (K-8 schools, 6-8 middle schools) in the East Tennessee Region and school achievement of USA Norm Gains, as measured by TVAAS?*

Question 3: *In the East Tennessee Region, do principals of higher gain and lower gain schools perceive their schools differently? If so, what are those differences?*

Methodology

This study was organized around three research questions. The researcher felt that if those questions could be answered then the study would be meaningful. The methodology included: selection of populations, TVAAS data, treatment of the data, effect size, educational significance, addition of qualitative data, and an explanation of how the data sources were used to answer the questions.

Selection of Population

This was a population study. The populations in this study consisted of all middle schools and all K-8 schools, those with sixth, seventh, and eighth grades, in the East Tennessee Region over a three year period, 1997, 1998, and 1999. This population was chosen because there were ample numbers of K-8 schools and middle schools in this region. During the 1997 testing, there were 54 middle schools and 61 K-8 schools. However, due to grade configuration changes, there were 55 middle schools and 54 K-8

schools during the 1998 testing. During the 1999 testing, there were 56 middle schools and 53 K-8 schools in this study.

TVAAS Data

Since 1992, the Tennessee Value-Added Assessment System data have been public information in the State of Tennessee. The TVAAS data were selected for comparing the K-8 schools and middle schools because they provide estimated yearly gains. The estimated gains have been statistically treated to rule out equity concerns of ability, race, and school location. Though the study involved estimated gains, no individual student information was required from these students. The researcher had no access to or use for individual test scores. All gains were expressed as school means or averages. The study utilized school gains provided by TVAAS..

The researcher contacted Dr. Benjamin Brown, Executive Director of Evaluation and Assessment Division of the Tennessee Department of Education, for the TVAAS data. The data were received as hard copies of the Report Card Supplement from 32 school systems, representing the East Tennessee Regional Office. Any Tennessee resident had the right to request these System Report Card Supplements.

Treatment of Data

Since this was a population study, the analysis of the data included three components which were: population means, standard deviations, and effect sizes. After the TVAAS data were received from the Tennessee State Department of Education, the researcher followed these six procedures:

1. All middle school mean gains were tabulated and combined in each of the five subject

areas and in each of the three grade levels. This was a simple averaging of the mean gains in the 15 categories; thus creating a mean of means for each category. This same process was used for each of the three years from 1997-99. Single year averages were chosen over using the three-year average because a more accurate result would come from a mean of means. The three-year average would have provided a mean of means of means which would have been statistically undesirable.

2. K-8 school mean gains were tabulated and combined in each of the five subject areas and in each of the three grade levels. This was a simple averaging of the mean gains in the 15 categories; also creating a mean of means for each category. This same process was used for each of the three years from 1997-99.
3. Standard deviations have been calculated for comparative purposes and because they have been an essential part of the effect size formula. The standard deviations were calculated for both middle school mean gains and K-8 school mean gains in each of the 15 categories. This process was used for each of the three years from 1997-99. The standard deviation of the control group (middle school) and the means of both K-8 schools and middle schools were needed to compute the effect size.
4. The effect size (ES) for each category was calculated by subtracting the average mean gain of the middle school group (the control group) from the average mean gain of the K-8 group (experimental group) to determine the mean difference. This mean difference was divided by the standard deviation of the middle school group (the control group).
5. An effect size of .5 standard deviation and above was used to determine if any

educational significance existed between the two groups (Rosenthal and Rosnow, 1984). The researcher chose an effect size of .5 standard deviation as educationally significant because of the existing literature on effect size and one-half of a standard deviation seemed reasonable since this study was conducted using a mean of means which produces a flattening effect.

6. The data from K-8 schools and middle schools were entered into the SPSS statistical program with careful checking for accuracy. Approximately, 4800 entries were made. The descriptive statistics used in the study were: 1) number of school entries, 2) the minimum school score, 3) the maximum school score, 4) the sum of school scores, 5) the mean of school scores, and 6) the standard deviation (Appendix D). The data were tabulated and analyzed for determination of the effect sizes.

Effect Size

The selection of effect size as a basis of comparison was an appropriate statistical measure since this was a population study. In a population study, effect size has been considered to be appropriate when comparing total populations, as this study did in the East Tennessee Region. According to Rosenthal and Rosnow (1984), in many experiments, the mean of the control group is subtracted from the mean of the experimental group in order to determine the mean difference. However, more information results from dividing this difference by the standard deviation of the control group. The result (known as the effect size or ES) indicates the number of standard deviations by which the two groups differ. The effect size (ES) is computed as follows:

$$ES = \frac{\bar{X}_1 - \bar{X}_2}{S_2}$$

$\bar{X}_1$ = Mean of the experimental group (K-8 School)

$\bar{X}_2$ = Mean of the control group (Middle School)

s_2 = Standard deviation of the control group (Middle School)

If the experimental group has a higher mean, it indicates by how many standard deviation units the experimental group exceeds the control group. Some researchers have suggested that an effect size of .5 standard deviation units or greater should be considered large (this is when the experimental group is one-half of a standard deviation above the control group). Further, they suggest that effect sizes of .3 to .5 are moderate, .1 to .3 are small, and .1 and less are trivial

Educational Significance

Educational significance was used rather than statistical significance. Statistical significance was not appropriate because the study included the entire population. Probability was not a concern since the complete population results were already known. Educational significance means a judgment by experts in the field as to whether the magnitude of observations are sufficient to justify educational outcomes (Dessart, 2000).

The researcher chose an effect size of .5 standard deviation as having a large educational significance because the existing literature on effect size supported it, and one-half of a standard deviation seemed reasonable since this study was conducted using a mean of means which produces a flattening effect. Further, the researcher chose an effect size of .3 to .5 standard deviation as having a moderate educational significance for the same reasons.

Addition of Qualitative Data

The qualitative data were added to provide the researcher with a more complete snapshot of the research area. Human Research approval was granted in December, 1999 (Appendix B). Since it was not feasible to call all 119 school principals, the researcher interviewed 12 principals by telephone in the study. This represented a ten percent sample population of school principals. The telephone survey represented a collaborative and supplemental part of the study. Six principals were middle school principals and six principals were K-8 school principals. Six higher gain middle schools and six higher gain K-8 schools were identified. A random drawing from each category was conducted. The researcher made telephone calls until three principals from the higher gain schools, in both middle and K-8 schools, were reached for a telephone interview.

In a similar fashion, six lower gain middle schools and six lower gain K-8 schools were identified. A random drawing from each category was conducted. The researcher made telephone calls until three principals from the lower gain schools, in both middle and K-8 schools, were reached for a telephone interview.

The interview contained five questions (see Appendix C). Interviews were limited to five questions because principals were more likely to respond to a short interview than a long interview. A total of twelve phone interviews, with school principals, were conducted in this study. The participants were read the disclosure letter (Appendix C) before the phone interview began. The interviews were not recorded for a number of reasons which included: 1) recording might inhibit principal participation; 2) recording might inhibit honesty and candor; and 3) the researcher needed only the essence of their

answers. The researcher took detailed notes during the interview. While it was recognized that every word might not be recorded, the essence of each answer was collected by the researcher. The data were recorded and saved for analysis and interpretation.

Five qualitative questions were asked to each principal. Question one was concerned with the kind of community, the percentage of free and reduced students, and student ability. The researcher wanted to collect these demographic data for later comparisons. Question two was concerned with how teachers were organized and their years of experience. The researcher wanted to know if how teachers were organized or their years of experience could account for differences between higher gain and lower gain schools. Question three was concerned with how principals perceived the curriculum and instruction at their schools. The researcher wanted to know if perceptions about curriculum and instruction might relate to performance outcomes. Question four was concerned with teacher preparations for TCAP/Terra Nova testing in the spring. Again, the researcher wanted to know if this factor might relate to performance. Finally, question five was concerned with principal perceptions and feelings about TVAAS. The researcher wanted to know if these perceptions might relate to performance outcomes.

Qualitative (interviews) results were analyzed looking for trends and patterns that could provide further meaning to this study. Field notes were taken. From the field notes, the researcher identified the major ideas and sorted them by categories. Once the categories were sorted and determined, the researcher started to identify the underlying themes. Finally, the themes were displayed and discussed.

How Data Sources Were Used

The data sources were used to answer the three research questions. The explanation of how the data sources were used in developing responses to each question follows.

Question 1: *What, if any, relationship exists between grade configurations of schools (K-8 schools, 6-8 middle schools) in the East Tennessee Region and the average academic gains of students, as measured by the Tennessee Value-Added Assessment System (TVAAS)?*

TVAAS data from middle schools and K-8 schools were entered into the SPSS statistical program. This produced 45 categories of comparison. The average academic gain for each group was determined along with the standard deviation. By subtracting the average middle school gain from the average K-8 school gain, the difference was determined. This difference was divided by the standard deviation of the middle school group which determined the effect size.

Once each effect size was calculated, the researcher could determine whether the effect size was significant or not. This information helped to determine whether there was a relationship between grade configuration and the average academic gain. By counting the number of effect sizes that favored middle schools and K-8 schools, the researcher could determine patterns and trends. Collectively, this information was used to answer question one.

Question 2: *What, if any, relationship exists between grade configuration of schools (K-8schools, 6-8 middle schools) in the East Tennessee Region and school achievement of USA Norm Gains, as measured by TVAAS?*

The number of schools meeting the USA Norm Gains was recorded in all 45 categories. Percentages were calculated for each group, middle schools and K-8 schools,

meeting the USA Norm Gain. These percentages were compared between the two groups. This information helped determine whether there was a relationship between grade configuration and achievement of USA Norm Gains, as measured by TVAAS.

Question 3: *In the East Tennessee Region, do principals of higher gain and lower gain schools perceive their schools differently? If so, what are those differences?*

The telephone interviews were used to answer this question. The researcher collected the data and found differences and similarities between higher gain and lower gain schools. Those differences and similarities are reported in chapter four.

Summary

Chapter three has presented the methodology used in the study. It included: the research questions, the selection of schools, the TVAAS data, the treatment of data, the effect size, educational significance, and how the data sources were used to answer the questions. The study included both quantitative and qualitative research.

The findings of the study are reported and discussed in chapter four. In chapter five, the summary, conclusions, implications, and recommendations are discussed.

CHAPTER IV.

FINDINGS

First, demographic information is presented. Next, findings are presented in order, by research question. Last, a summary of the findings is included.

Demographic Information

The researcher utilized data from 119 schools in the study. A total of 57 middle schools and 62 K-8 schools from the East Tennessee Region were included. The schools were representative of a range of school settings which included urban, suburban, small town, and rural areas. The study included both county and city school systems.

Research Question 1

What, if any, relationship exists between grade configurations of schools (K-8 schools, 6-8 middle schools) in the East Tennessee Region and the average academic gains of students, as measured by the Tennessee Value-Added Assessment System?

The data analyses indicate the following relationship between grade configuration and academic gains as measured by TVAAS: 1) sixth grade students performed better in K-8 schools, 2) seventh grade students performed better in middle schools, 3) eighth grade students performed about the same in K-8 schools as in middle schools.

The researcher identified eleven areas of significance from the forty-five statistical

comparisons. These eleven findings show a relationship between grade configurations of schools (K-8 schools and 6-8 middle schools) and the average academic gain of students as measured by TVAAS. Four large effect sizes and seven moderate effect sizes were found to be educationally significant. Seventeen small effect sizes and seventeen trivial effect sizes were found in the study. The small and trivial effect sizes were not educationally significant. In this section, the discussion of large and moderate effect sizes have been included because they are noteworthy and have educational significance. No discussion has been presented concerning the small and trivial effect sizes because they lack educational significance. It can be considered that these small and trivial effect sizes have little impact or effect.

In the findings reported below, positive scores favor K-8 schools while negative scores favor middle schools.

Finding # 1. A large effect size was found in the 1997 mean gains in seventh grade math (see Table 1). A -.72 effect size was determined in favor of middle schools. This was the "second largest" effect size found in this study. The K-8 school mean gain was 19.3787 while the middle school mean gain was 24.6463. The middle school standard deviation was 7.2954.

The effect size (ES) was computed as follows: $d = \frac{\bar{X}_1 - \bar{X}_2}{S_2}$

$\frac{19.3787 - 24.6463}{7.2954} = -.722044028$ or $-.72$

This effect size was considered to be large and educationally significant. The mean gain of seventh grade students in mathematics who were enrolled in middle schools in the

Table 1. 1997 Mean Gains for 7th Grade Mathematics Scores in K-8 Schools and Middle Schools

Descriptive Statistics

	N	Minimum	Maximum	Sum	Mean	Std. Deviation
K8.MA.7C	61	-2.10	53.00	1182.10	19.3787	10.4738
MS.MA.7C	54	11.10	40.90	1330.90	24.6463	7.2954
Valid N (listwise)	54					

Legend

MA = Mathematics RE = Reading LA = Language
SS = Social Studies SC = Science

East Tennessee Region was better than the mean gain of students enrolled in K-8 schools.

The researcher acknowledges that the mean gain comparisons in Figures 1-4 have been compressed. The reader should look closely at each compressed scale.

Figure 1 graphically presents the seventh grade math mean gain scores in K-8 schools and middle schools. The K-8 school mean gain was 19.3787 while the middle school mean gain was 24.6463.

Finding # 2. A large effect size was found in the 1997 mean gains in seventh grade science. A -.61 effect size was determined in favor of middle schools. This was the "fourth largest" effect size found in this study. The K-8 school mean gain was 23.2279 while the middle school mean gain was 26.3537. The middle school standard deviation was 5.1660 (see Table 2).

The effect size (ES) was computed as follows: $d = \frac{\bar{X}_1 - \bar{X}_2}{S_2}$

$\frac{23.2279 - 26.3537}{5.1660} = -.605071622$ or -.61

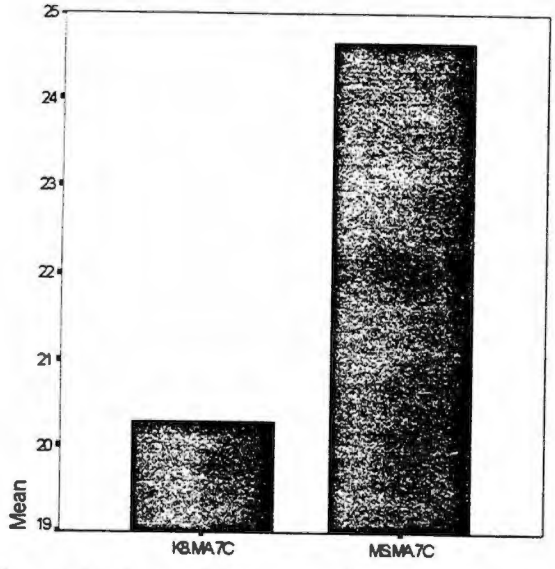


Figure 1: A graphic comparison of the 1997 mean gains for 7th grade mathematics scores in K-8 Schools and Middle Schools.

Table 2. 1997 Mean Gains for 7th Grade Science Scores in K-8 Schools and Middle Schools

Descriptive Statistics

	N	Minimum	Maximum	Sum	Mean	Std. Deviation
K8.SC.7C	61	-8.40	61.80	1416.90	23.2279	11.0720
MS.SC.7C	54	16.90	42.60	1423.10	26.3537	5.1660
Valid N (listwise)	54					

This effect size was considered to be large and educationally significant. The mean gain of seventh grade students in science who were enrolled in middle schools in the East Tennessee Region was better than the mean gain of students enrolled in K-8 schools.

Figure 2 graphically presents the seventh grade science mean gain scores in K-8 schools and middle schools. The K-8 school mean gain was 23.2279 while the middle school mean gain was 26.3537.

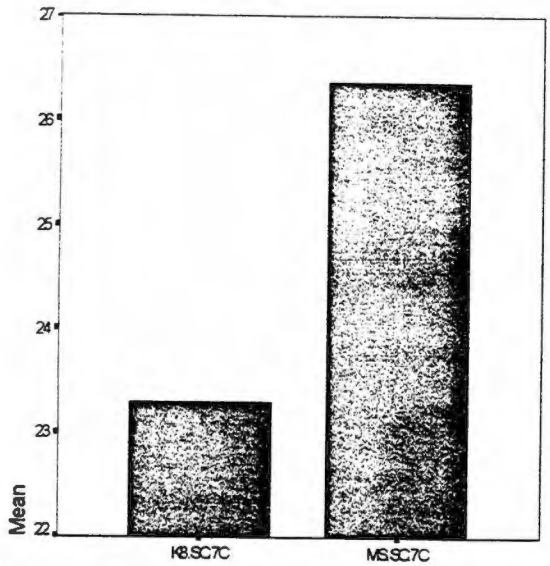


Figure 2: A graphic comparison of the 1997 mean gains for 7th grade science scores in K-8 Schools and Middle Schools.

Finding # 3. A large effect size was found in the 1997 mean gains in eighth grade reading. A .78 effect size was determined in favor of K-8 schools. This was the "largest" effect size found in the study. The K-8 school mean gain was 15.1066 while the middle school mean gain was 13.2852. The middle school standard deviation was 2.3433 (see Table 3).

The effect size (ES) was computed as follows: $d = \frac{\bar{X}_1 - \bar{X}_2}{S_2}$

$\frac{15.1066 - 13.2852}{2.3433} = .777279904$ or .78

This effect size was considered to be large and educationally significant. The mean gain of eighth grade students in reading who were enrolled in K-8 schools in the East Tennessee Region was better than the mean gain of students enrolled in middle schools. Wihry and others (1992) found similar results in Maine that favored K-8 schools in eighth grade reading scores.

Table 3. 1997 Mean Gains for 8th Grade Reading Scores in K-8 Schools and Middle Schools

Descriptive Statistics

	N	Minimum	Maximum	Sum	Mean	Std. Deviation
K8.RE.8C	61	5.60	42.80	921.50	15.1066	5.5371
MS.RE.8C	54	5.70	18.50	717.40	13.2852	2.3433
Valid N (listwise)	54					

Figure 3 graphically presents the eighth grade reading mean gain scores in K-8 schools and middle schools. The K-8 school mean gain was 15.1066 while the middle school mean gain was 13.2852.

Finding # 4. A large effect size was found in the 1999 mean gains in sixth grade reading. A .71 effect size was determined in favor of K-8 schools. This was the "third largest" effect size found in this study. The K-8 mean gain was 7.0509 while the middle school mean gain was 3.6696. The middle school standard deviation was 4.7691 (see Table 4).

The effect size (ES) was computed as follows: $d = \frac{\bar{X}_1 - \bar{X}_2}{S_2}$

$\frac{7.0509 - 3.6696}{4.7691} = .709001698$ or .71

This effect size was considered to be large and educationally significant. The mean gain of sixth grade students in reading who were enrolled in K-8 schools in the East Tennessee Region was better than the mean gain of students enrolled in middle schools. Becker (1987) found similar results in Pennsylvania that favored K-8 schools in sixth grade reading scores.

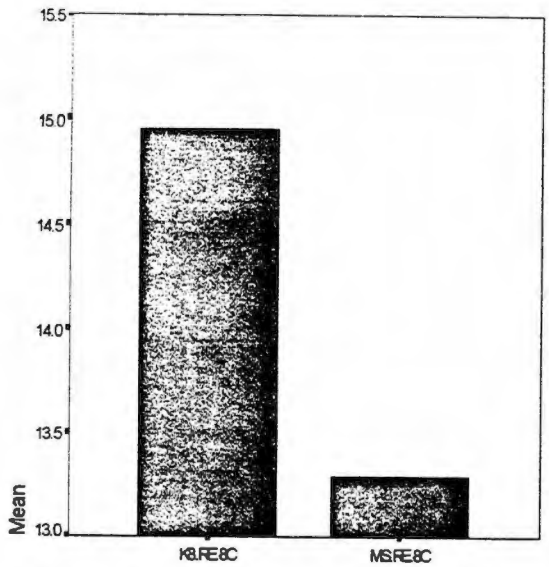


Figure 3: A graphic comparison of the 1997 mean gains for 8th grade reading scores in K-8 Schools and Middle Schools.

Table 4. 1999 Mean Gains for 6th Grade Reading Scores in K-8 Schools and Middle Schools

Descriptive Statistics

	N	Minimum	Maximum	Sum	Mean	Std. Deviation
K8.RE.6	53	-3.60	24.40	373.70	7.0509	5.3342
MS.RE.6	56	-8.90	17.60	205.50	3.6696	4.7691
Valid N (listwise)	53					

Figure 4 graphically presents the sixth grade reading mean gain scores between K-8 schools and middle schools. The K-8 school mean gain was 7.0509 while the middle school mean gain was 3.6696. Like Figures 1-3, the scale used in this figure has been compressed. It presents a range of mean gain scores that begins with three and ends with eight.

In the next section, the researcher has reported the moderate effect sizes of the study.

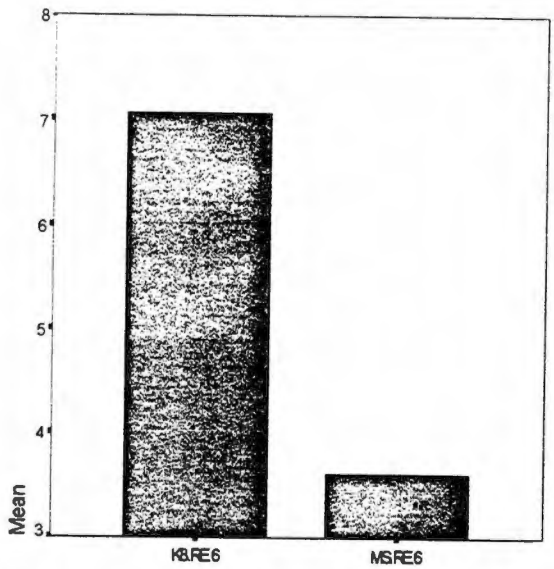


Figure 4: A graphic comparison of the 1999 mean gains for 6th grade reading scores in K-8 Schools and Middle Schools.

Moderate Effect Sizes

Seven moderate effect sizes were found in this study. Those effect sizes from .3 to .5 have been considered to be moderately significant. The moderate effect sizes were in the following seven areas: 1) a moderate effect size favored middle schools in seventh grade social studies, 2) a moderate effect size favored middle schools in eighth grade reading, 3) a moderate effect size favored middle schools in eighth grade language, 4) a moderate effect size favored K-8 schools in sixth grade math, 5) a moderate effect size favored K-8 schools in sixth grade language, 6) a moderate effect size favored K-8 schools in sixth grade science, 7) and a moderate effect size favored K-8 schools in seventh grade science.

Finding # 5. A moderate effect size was found in the 1998 mean gains in seventh grade social studies. A -.40 effect size was determined in favor of middle schools. The K-8 school mean gain was 12.3407 while the middle school mean gain was 14.3836. The

middle school standard deviation was 5.0860 (see Table 5).

The effect size (ES) was computed as follows: $d = \frac{\bar{X}_1 - \bar{X}_2}{S2}$

$\frac{12.3407 - 14.3836}{5.0860} = -.401671254$ or $-.40$

This effect size was considered to be moderate in educational significance. The mean gain of seventh grade students in social studies who were enrolled in middle schools in the East Tennessee Region was better than the mean gain of students enrolled in K-8 schools.

Finding # 6. A moderate effect size was found in the 1998 mean gains in eighth grade reading. A -.49 effect size was determined in favor of middle schools. The K-8 school mean gain was 7.3667 while the middle school mean gain was 9.1727. The middle school standard deviation was 3.7016 (see Table 6).

The effect size (ES) was computed as follows: $d = \frac{\bar{X}_1 - \bar{X}_2}{S2}$

$\frac{7.3667 - 9.1727}{3.7016} = -.487897126$ or $-.49$

Table 5. 1998 Mean Gains for 7th Grade Social Studies Scores in K-8 Schools and Middle Schools

Descriptive Statistics

	N	Minimum	Maximum	Sum	Mean	Std. Deviation
K8.SS.7B	54	-5.50	25.20	666.40	12.3407	6.6854
MS.SS.7B	55	3.80	31.50	791.10	14.3836	5.0860
Valid N (listwise)	53					

Table 6. 1998 Mean Gains for 8th Grade Reading Scores in K-8 Schools and Middle Schools

Descriptive Statistics

	N	Minimum	Maximum	Sum	Mean	Std. Deviation
K8.RE.8B	54	-18.00	18.80	397.80	7.3667	6.0992
MS.RE.8B	55	1.30	20.40	504.50	9.1727	3.7016
Valid N (listwise)	53					

This effect size was considered to be moderate in educational significance. The mean gain of eighth grade students in reading who were enrolled in middle schools in the East Tennessee Region was better than the mean gain of students enrolled in K-8 schools.

Finding # 7. A moderate effect size was found in the 1998 mean gains in eighth grade language. A -.35 effect size was determined in favor of middle schools. The K-8 school mean gain was 7.4264 while the middle school mean gain was 9.0891. The middle school standard deviation was 4.7340 (see Table 7).

The effect size (ES) was computed as follows: $d = \frac{\bar{X}_1 - \bar{X}_2}{S_2}$

$\frac{7.4264 - 9.0891}{4.7340} = -.35122518$ or $-.35$

This effect size was considered to be moderate in educational significance. The mean gain of eighth grade students in language who were enrolled in middle schools in the East Tennessee Region was better than the mean gain of students enrolled in K-8 schools.

Finding # 8. A moderate effect size was found in the 1999 mean gains in sixth grade math. A .34 effect size was determined in favor of K-8 schools. The K-8 school mean

Table 7. 1998 Mean Gains for 8th Grade Language Scores in K-8 Schools and Middle Schools

Descriptive Statistics

	N	Minimum	Maximum	Sum	Mean	Std. Deviation
K8.LA.8B	54	-16.10	35.20	401.40	7.4333	7.9167
MS.LA.8B	55	-.20	22.40	499.90	9.0891	4.7340
Valid N (listwise)	53					

gain was 17.1774 while the middle school mean gain was 14.8679. The middle school standard deviation was 6.8555 (see Table 8).

The effect size (ES) was computed as follows: $d = \frac{\bar{X}_1 - \bar{X}_2}{S_2}$

$\frac{17.1774 - 14.8679}{6.8555} = .336882795$ or .34

This effect size was considered to be moderate in educational significance. The mean gain of sixth grade students in mathematics who were enrolled in K-8 schools in the East Tennessee Region was better than the mean gain of students enrolled in middle schools.

Finding # 9. A moderate effect size was found in the 1999 mean gains in sixth grade language. A .45 effect size was determined in favor of K-8 schools. The K-8 school mean gain was 9.7358 while the middle school mean gain was 7.3875. The middle school standard deviation was 5.2720 (see Table 9).

The effect size (ES) was computed as follows: $d = \frac{\bar{X}_1 - \bar{X}_2}{S_2}$

$\frac{9.7358 - 7.3875}{5.2720} = .44542868$ or .45

Table 8. 1999 Mean Gains for 6th Grade Mathematics Scores in K-8 Schools and Middle Schools

Descriptive Statistics

	N	Minimum	Maximum	Sum	Mean	Std. Deviation
K8.MA.6	53	-8.40	38.50	910.40	17.1774	10.1087
MS.MA.6	56	.70	30.00	832.60	14.8679	6.8555
Valid N (listwise)	53					

Table 9. 1999 Mean Gains for 6th Grade Language Scores in K-8 Schools and Middle Schools

Descriptive Statistics

	N	Minimum	Maximum	Sum	Mean	Std. Deviation
K8.LA.6	53	-5.50	53.80	516.00	9.7358	9.5921
MS.LA.6	56	-3.70	25.90	413.70	7.3875	5.2720
Valid N (listwise)	53					

This effect size was considered to be moderate in educational significance. The mean gain of sixth grade students in language who were enrolled in K-8 schools in the East Tennessee Region was better than the mean gain of students enrolled in middle schools.

Finding # 10. A moderate effect size was found in the 1999 mean gains in sixth grade science. A .31 effect size was determined in favor of K-8 schools. The K-8 school mean gain was 12.7943 while the middle school mean gain was 10.8268. The middle school standard deviation was 6.4493 (see Table 10).

The effect size (ES) was computed as follows: $d = \frac{\bar{X}_1 - \bar{X}_2}{S_2}$

$\frac{12.7943 - 10.8268}{6.4493} = .305071868$ or .31

Table 10. 1999 Mean Gains for 6th Grade Science Scores in K-8 Schools and Middle Schools

Descriptive Statistics

	N	Minimum	Maximum	Sum	Mean	Std. Deviation
K8.SC.6	53	-6.80	38.00	678.10	12.7943	8.5928
MS.SC.6	56	-1.70	24.10	606.30	10.8268	6.4493
Valid N (listwise)	53					

This effect size was considered to be moderate in educational significance. The mean gain of sixth grade students in science who were enrolled in K-8 schools in the East Tennessee Region was better than the mean gain of students enrolled in middle schools.

Finding # 11. A moderate effect size was found in the 1999 mean gains in seventh grade science. A .30 effect size was determined in favor of K-8 schools. The K-8 school mean gain was 16.1981 while the middle school mean gain was 14.7625. The middle school standard deviation was 4.8571 (see Table 11).

The effect size (ES) was computed as follows: $d = \frac{\bar{X}_1 - \bar{X}_2}{S_2}$

$\frac{16.1981 - 14.7625}{4.8571} = .295567314$ or .30

This effect size was considered to be moderate in educational significance. The mean gain of seventh grade students in science who were enrolled in K-8 schools in the East Tennessee Region was better than the mean gain of students enrolled in middle schools.

In the next section, the researcher has reported the small effect sizes found in this study.

Table 11. 1999 Mean Gains for 7th Grade Science Scores in K-8 Schools and Middle School

Descriptive Statistics

	N	Minimum	Maximum	Sum	Mean	Std. Deviation
K8.SC.7	53	.10	52.40	858.50	16.1981	8.8027
MS.SC.7	56	1.70	28.30	826.70	14.7625	4.8571
Valid N (listwise)	53					

Small Effect Sizes

Seventeen small effect sizes were found in this study. They are considered to have little educational significance. In 1997, the following four small effect sizes favored K-8 schools: .11 sixth grade reading gain scores; .14 eighth grade math gain scores; .10 eighth grade language gain scores; and .18 eighth grade science gain scores. In 1997, the following four small effect sizes favored middle schools: -.18 sixth grade science gain scores; -.24 seventh grade reading gain scores; -.21 seventh grade language gain scores; -.13 seventh grade social studies gain scores. In 1998, no small effect sizes favored K-8 schools. In 1998, the following four small effect sizes favored middle schools: -.28 sixth grade language gain scores; -.25 seventh grade math gain scores; -.15 seventh grade reading gain scores; and -.10 seventh grade language gain scores.

In 1999, the following two small effect sizes favored K-8 schools: .29 sixth grade social studies gain scores; and .17 seventh grade reading gain scores. In 1999, the following three small effect sizes favored middle schools: -.13 seventh grade social studies gain scores; -.20 eighth grade reading gain scores; and -.20 eighth science gain scores.

In the next section, the researcher has reported the trivial effect sizes of the study.

Trivial Effect Sizes

Seventeen trivial effect sizes were found in this study. They are considered to have no educational significance. In 1997, the following three trivial effect sizes favored K-8 schools: .08 sixth grade math gain scores; .002 sixth grade language gain scores; and .09 eighth grade social studies gain scores. In 1997, the following trivial effect size favored middle schools: -.02 sixth grade social studies gain scores. In 1998, the following three trivial effect sizes favored K-8 schools: .08 sixth grade reading gain scores; .02 sixth grade science gain scores; and .06 seventh grade science gain scores. In 1998, the following five trivial effect sizes favored middle schools: -.02 sixth grade math gain scores; -.09 sixth grade social studies gain scores; -.09 eighth grade math gain scores; -.05 eighth grade social studies gain scores; and -.05 eighth grade science gain scores. In 1999, there were five trivial effect sizes (see Table 12).

All Effect Sizes

All forty-five effect sizes have been reported in Table 12. The range of effect sizes for K-8 schools was .002 to .78. The range of effect sizes for middle school was -.02 to -.72. This table represented the main quantitative research findings in the study concerning the comparison of middle and K-8 school value-added gains. Positive scores favored K-8 schools while negative scores favored middle schools.

The researcher looked for additional grade level findings in the effect sizes (Table 12). Using a benchmark of 2/3 or 67%, three major findings were identified. First, 10 of 15 (67%) sixth grade categories favored K-8 schools. This finding suggests that grade six students perform better in K-8 schools, at least in East Tennessee. Second, 11 of 15

Table 12. 1997-99 Effect Sizes for Grades Six, Seven, and Eight in K-8 Schools and Middle Schools

1997	MA	RE	LA	SS	SC
6th	.08	.11	.002	-.02	-.18
7th	-.72	-.24	-.21	-.13	-.61
8th	.14	.78	.10	.09	.18
1998	MA	RE	LA	SS	SC
6th	-.02	.08	-.28	-.09	.02
7th	-.25	-.15	-.10	-.40	.06
8th	-.09	-.49	-.35	-.05	-.05
1999	MA	RE	LA	SS	SC
6th	.34	.71	.45	.29	.31
7th	.05	.17	-.08	-.13	.30
8th	-.09	-.20	.01	.05	-.20

Legend for Tables 12-16

MA = Math
RE = Reading
LA = Language
SS = Social Studies
SC = Science
N = Number of Schools
Positive scores = K-8 Schools
Negative scores = Middle Schools

(73%) seventh grade categories favored middle school. This seventh grade finding suggests that East Tennessee seventh grade students perform better in middle schools. Third, 8 of 15 (53%) of eighth grade categories favored middle school while 7 of 15 (47%) favored K-8 schools. In East Tennessee, the grade eight finding suggests that the performance for eighth grade students is about the same in both middle school and K-8 school (see Table 12).

The researcher looked for subject area findings in the effect sizes (Table 12). Three major findings emerged. First, grade six reading effect sizes favored K-8 schools in every year. Second, grade seven language effect sizes favored middle schools in every year. Third, grade seven social studies effect sizes favored middle schools every year.

Research Question 2

What, if any, relationship exists between grade configuration of schools (K-8 schools, 6-8 middle schools) in the East Tennessee Region and school achievement of USA Norm Gains, as measured by TVAAS?

The data analyses indicate the following relationship between grade configurations and achievement of USA Norm Gains, as measured by TVAAS: 1) sixth grade students in K-8 schools meet a higher percentage of USA Norm Gains than sixth grade students in middle schools, and 2) seventh and eighth grade students in middle schools meet a higher percentage of USA Norm Gains than K-8 schools.

The number of schools meeting the USA Norm Gains at each subject area has been reported in Tables 13 and 14. From these numbers, percentages have been calculated for comparing middle schools to K-8 schools(Tables 15 and 16). Using a benchmark of 2/3 or 67%, three major findings emerged. By comparing these percentages, the researcher

Table 13. Number of East Tennessee K-8 Schools Meeting USA Norm Gains

1997	MA	RE	LA	SS	SC
6	31	52	38	1	27
7	45	56	52	30	52
8	34	57	51	4	31
N = 61					
1998	MA	RE	LA	SS	SC
6	21	35	41	9	45
7	23	38	41	32	47
8	17	27	22	41	38
N = 54					
1999	MA	RE	LA	SS	SC
6	28	13	39	37	33
7	27	41	22	14	28
8	30	40	39	45	40
N = 53					

Table 14. Number of East Tennessee Middle Schools Meeting USA Norm Gains

1997	MA	RE	LA	SS	SC
6	24	43	36	0	21
7	51	52	53	31	54
8	32	53	45	0	27

N = 54

1998	MA	RE	LA	SS	SC
6	19	34	45	10	47
7	32	42	49	42	49
8	15	32	33	41	48

N = 55

1999	MA	RE	LA	SS	SC
6	19	7	43	38	28
7	31	47	30	13	33
8	36	51	44	52	50

N = 56

Table 15. Percent of East Tennessee K-8 Schools Meeting USA Norm Gains

1997	MA	RE	LA	SS	SC
6	51%	85%	62%	2%	44%
7	74%	92%	85%	49%	85%
8	56%	93%	84%	7%	51%

N = 61

1998	MA	RE	LA	SS	SC
6	39%	65%	76%	17%	83%
7	43%	70%	76%	59%	87%
8	31%	50%	41%	76%	70%

N = 54

1999	MA	RE	LA	SS	SC
6	53%	25%	74%	70%	62%
7	51%	77%	42%	26%	53%
8	57%	75%	74%	85%	75%

N = 53

Table 16. Percent of East Tennessee Middle Schools Meeting USA Norm Gains

1997	MA	RE	LA	SS	SC
6	44%	80%	67%	0%	39%
7	94%	96%	98%	57%	100%
8	59%	98%	83%	0%	50%

N = 54

1998	MA	RE	LA	SS	SC
6	35%	62%	82%	18%	85%
7	58%	76%	89%	76%	89%
8	27%	58%	60%	75%	87%

N = 55

1999	MA	RE	LA	SS	SC
6	34%	13%	77%	68%	50%
7	55%	84%	54%	23%	59%
8	64%	91%	79%	93%	89%

N = 56

found that 10 of 15 (67%) sixth grade categories favored K-8 schools. However, a comparison of seventh grade categories revealed 14 of 15 (93%) favored middle schools. A comparison of eighth grade categories revealed 10 of 15 (73%) favored middle schools.

Research Question 3

In the East Tennessee Region, do principals of higher gain and lower gain schools perceive their schools differently? If so, what are those differences?

The data analyses indicate that principals in higher gain and lower gain schools in the East Tennessee Region did perceive their schools differently (Appendix C). These findings are supported by the researcher's comparison of principals' perceptions:

1. Higher gain schools were perceived to have higher ability students.
2. Higher gain schools were perceived to have better curriculum and instruction.
3. Higher gain schools were perceived to be slightly more accepting of value-added assessment.

Students at higher gain schools were perceived to have more ability than those in lower gain schools. Principals at higher gain schools reported that their students were average to high in ability, while principals at lower gain schools reported that their students were below average to average in ability.

Concerning curriculum and instruction, principals differed in their range of responses. Principals at higher gain schools reported that the curriculum and instruction ranged from good to excellent, while principals at lower gain schools reported the curriculum and instruction ranged from below average to excellent.

When principals were asked about how they felt about value-added assessment, they responded in a variety of ways. Principals at higher gain schools were more accepting of value-added assessment than principals at lower gain schools.

Other Qualitative Findings

Higher gain schools, both middle and K-8 schools, had a smaller percentage of free and reduced students than lower gain schools. The higher gain schools averaged 49% of students on free and reduced lunch while the lower gain schools averaged 73% of students on free and reduced lunch.

Higher gain schools had more experienced teachers than lower gain schools. Teachers at higher gain schools averaged 15 years of teaching experience while those in lower gain schools averaged 9 years of teaching experience.

On TCAP test preparation, principals at higher gain schools reported almost the same kind of preparations as principals at lower gain schools reported. The researcher could not find any appreciable differences in their respective interview responses.

Higher gain schools were organized slightly more around teams of teachers than lower gain schools according to principals.

Summary

In chapter four, the findings have been reported and discussed. First, the demographic information was presented. This was followed by the research questions and effect sizes which included: large, moderate, small, and trivial effect sizes. The data were reported in narrative and table form. The number of middle schools and K-8 schools that

met the USA Norm Gains was reported. The percentages of middle schools and K-8 schools that met the USA Norm Gains were also reported. Qualitative findings were also presented and discussed.

Research Question 1

What, if any, relationship exists between grade configurations of schools (K-8 schools, 6-8 middle schools) in the East Tennessee Region and the average academic gains of students, as measured by the Tennessee Value-Added Assessment System?

The findings revealed a relationship between grade configuration and academic gains as measured by TVAAS: 1) sixth grade students performed better in K-8 schools, 2) seventh grade students performed better in middle schools, 3) eighth grade students performed about the same in both K-8 schools and middle schools.

Four large effect sizes were found in the study. Those effect sizes ranging from .5 and above were considered to have a large educational significance. Large effect sizes favoring different grade configurations were:

1) A large effect size favored middle schools in seventh grade math gain scores.
2) A large effect size favored middle schools in seventh grade science gain scores.
3) A large effect size favored K-8 schools in eighth grade reading gain scores.
4) A large effect size favored K-8 schools in sixth grade reading gain scores.

Seven moderate effect sizes were found in this study. Those effect sizes from .3 to .5 were considered to be moderately significant. The moderate effect sizes favoring different grade configurations were:

1) A moderate effect size favored middle schools in seventh grade social studies gain scores.

2) A moderate effect size favored middle schools in eighth grade reading gain scores.

3) A moderate effect size favored middle schools in eighth grade language gain scores.

4) A moderate effect size favored K-8 schools in sixth grade math gain scores.

5) A moderate effect size favored K-8 schools in sixth grade language gain scores.

6) A moderate effect size favored K-8 schools in sixth grade science gain scores.

7) A moderate effect size favored K-8 schools in seventh grade science gain scores.

The researcher found grade level patterns in the Effect Sizes (Table 12). Several interesting findings emerged:

1) 10 of 15 sixth grade categories favored K-8 schools.

2) 11 of 15 seventh grade categories favored middle school.

3) 8 of 15 eighth grade categories favored middle school while 7 of 15 eighth grade categories favored K-8 schools.

4) Grade six reading effect sizes favored K-8 schools in every year.

5) Grade seven language effect sizes favored middle schools in every year.

6) Grade seven social studies effect sizes favored middle schools in every year.

Research Question 2

What, if any, relationship exists between grade configuration of schools (K-8 schools, 6-8 middle schools) in the East Tennessee Region and school achievement of USA Norm Gains, as measured by TVAAS?

The findings identified the following relationship between grade configuration and achievement of USA Norm Gains, as measured by TVAAS: 1) sixth grade in K-8 schools met a higher percentage of USA Norm Gains than sixth grade in middle schools, and 2) seventh and eighth grade in middle schools met a higher percentage of USA Norm Gains

than seventh and eighth grade in K-8 schools.

The following findings relate to research question two. By comparing the percent of schools meeting the USA Norm Gains at each subject area, the researcher found:

1) 10 of 15 sixth grade categories favored K-8 schools.

2) 14 of 15 seventh grade categories favored middle schools.

3) 10 of 15 eighth grade categories favored middle schools.

Research Question 3

In the East Tennessee Region, do principals of higher gain and lower gain schools perceive their schools differently? If so, what are those differences?

The data show that principals in higher gain and lower gain schools in the East Tennessee Region perceive their schools differently (Appendix C). These findings are supported by the researcher's comparison of principals' perceptions:

1. Higher gain schools were perceived to have higher ability students.
2. Higher gain schools were perceived to have better curriculum and instruction.
3. Higher gain schools were perceived to be slightly more accepting of value-added assessment.

Chapter five presents the summary, conclusions, implications, and recommendations of the study. The summary focuses on the purpose of the study, a listing of the research questions, and the quantitative and qualitative findings of the study in relation to those research questions. The conclusions of the study are explained in detail in narrative form.

CHAPTER V.

SUMMARY, CONCLUSIONS, IMPLICATIONS, AND RECOMMENDATIONS

Summary

Chapter one presented the purpose of the study. This study examined the impact of middle schools versus K-8 schools on achievement using a type of measure which is intended to take differences in ability of students into account. One purpose of this study was to determine if performance, as indicated by the Tennessee Value Added Assessment System 1997-99 mean gains, was different for students enrolled in K-8 schools in the East Tennessee Region than it was for those enrolled in middle schools. Another purpose was to determine to what degree, if at all, both differences and similarities of performance were related to the grade configuration of the schools.

In chapter two, the research related to state testing programs, value-added assessments, and grade configurations was discussed. State testing programs exist in 48 states and have been used often for accountability purposes. Value-added assessments have provided researchers with a new testing measure that has eliminated equity questions when comparing school gains. Grade configuration studies were reviewed and there appears to be a growing body of research as well as opinion which suggests middle level students may perform better in K-8 schools.

In chapter three, the methodology in the study was presented. It included: the research questions, the selection of schools, TVAAS data, treatment of data, effect size, and how the data sources were used to answer the research questions. The study included both quantitative and qualitative research.

In chapter four, the three research questions were presented and the findings were reported in response to those questions:

Question 1: *What, if any, relationship exists between grade configurations of schools (K-8 schools, 6-8 middle schools) in the East Tennessee Region and the average academic gains of students, as measured by the Tennessee Value-Added Assessment System (TVAAS)?*

The data analyses indicate the following relationship between grade configuration and academic gains as measured by TVAAS: 1) sixth grade students performed better in K-8 schools than in middle schools, 2) seventh grade students performed better in middle schools than in K-8 schools, 3) eighth grade students performed about the same in K-8 schools as in middle schools.

Question 2: *What, if any, relationship exists between grade configuration of schools (K-8 schools, 6-8 middle schools) in the East Tennessee Region and school achievement of USA Norm Gains, as measured by TVAAS?*

The data analyses indicate the following relationship between grade configuration and achievement of USA Norm Gains as measured by TVAAS: 1) sixth grade in K-8 schools meet a higher percentage of USA Norm Gains than sixth grade in middle schools, and 2) seventh and eighth grade in middle schools meet a higher percentage of USA Norm Gains than seventh and eighth grade in K-8 schools.

Question 3: *In the East Tennessee Region, do principals of higher gain and lower gain schools perceive their schools differently? If so, what are those differences?*

The data analyses indicate that principals in higher gain and lower gain schools schools perceive their schools differently in the East Tennessee Region. These findings are supported by the researcher's comparison of principals' perceptions:

1. Principals at higher gain schools perceive their students as higher in ability.
2. Principals at higher gain schools perceive their curriculum and instruction as better.
3. Principals at higher gain schools perceive value-added assessment slightly more favorably.

Conclusions

Several conclusions are justified by the data found in the study:

First Conclusion: The results of this investigation suggest that a K-8 organizational structure is more appropriate than a 6-8 structure for sixth grade students in the East Tennessee Region, if one is concerned primarily about academic achievement. This conclusion is supported by the following seven findings:

1. Ten of fifteen sixth grade effect size categories favored K-8 schools.
2. A large K-8 school effect size (.71) was found in sixth grade reading gain scores.
3. A moderate K-8 school effect size (.34) was found in sixth grade math gain scores.
4. A moderate K-8 school effect size (.45) was found in sixth grade language gain scores.
5. A moderate K-8 school effect size (.31) was found in sixth grade science gain scores.
6. Sixth grade reading effect sizes favored K-8 schools gain scores in every year.
7. In percent of schools meeting USA Norm Gains, ten of fifteen sixth grade categories favored K-8 schools.

Second Conclusion: The results of this investigation suggest that a 7-8 middle school organizational structure is more appropriate than a K-8 school structure for seventh grade students in the East Tennessee Region, if one is concerned primarily about academic achievement. This conclusion is supported by the following seven findings:

1. Eleven of fifteen seventh grade effect size categories favored middle schools.
2. A large middle school effect size (-.72) was found in seventh grade math gain scores.
3. A large middle school effect size (-.61) was found in seventh grade science gain scores.
4. A moderate middle school effect size (-.40) was found in seventh grade social studies gain scores.
5. Seventh grade language effect sizes favored middle schools gain scores in every year.
6. Seventh grade social studies effect sizes favored middle schools gain scores in every year.
7. In percent of schools meeting USA Norm Gains, fourteen of fifteen seventh grade categories favored middle schools.

Third Conclusion: Based on the findings of this study, one cannot say that either a K-8 school or middle school (6-8) grade configuration is best for all students. This conclusion is supported by the following eleven findings:

1. Ten of fifteen sixth grade effect size categories favored K-8 schools.
2. A large K-8 school effect size (.71) was found in sixth grade reading gain scores.
3. A moderate K-8 school effect size (.34) was found in sixth grade math gain scores.
4. A moderate K-8 school effect size (.45) was found in sixth grade language gain scores.
5. A moderate K-8 school effect size (.31) was found in sixth grade science gain scores.
6. Eleven of fifteen seventh grade effect size categories favored middle schools gain scores.

7. A large middle school effect size (-.72) was found in seventh grade math gain scores.
8. A large middle school effect size (-.61) was found in seventh grade science gain scores.
9. A moderate middle school effect size (-.40) was found in seventh grade social studies gain scores.
10. Eight of fifteen eighth grade effect size categories favored middle schools.
11. Seven of fifteen eighth grade effect size categories favored K-8 schools.

Fourth Conclusion: Factors other than grade configuration may have a relationship on whether schools in the East Tennessee Region were higher gain or lower gain schools. This conclusion is supported by the researcher's comparison of principals' perceptions:

1. Higher gain schools had a smaller percentage of free and reduced lunch students.
2. Higher gain schools were perceived to have higher ability students.
3. Higher gain schools had more experienced teachers.
4. Higher gain schools were to perceived to have better curriculum and instruction.
5. Higher gain schools were perceived to be slightly more accepting of value-added assessment.

Discussion and Implications

This study found similar results to Franklin and Glascock (1996). They found that sixth graders performed better in elementary school and K-12 schools than in middle schools, in terms of achievement and persistence. A decade earlier, Becker (1987) concluded that elementary settings benefit sixth grade students from low social backgrounds, especially in reading.

Williams (1999) found that sixth grade students who were assigned to two- teacher teams demonstrated higher student achievement than those assigned to teams of four teachers. Alspaugh (1998) found a significant achievement loss associated with the transition from elementary school to middle school at sixth grade.

One implication resulted from the findings and conclusions. The researcher believed that this implication was logically derived:

Implication: Since sixth grade students performed better in K-8 schools and seventh grade students performed better in middle schools, it seems to imply that if a middle school organization is to be used then special attention to transition in sixth grade is needed.

Recommendations

More research is needed in this area. Fortunately, this dissertation lends itself to the addition of each succeeding year's value-added gains to this study. The researcher plans to continue this study over the next three years. This will expand the study and will provide a larger database over time.

Similar studies of value-added gains concerning additional middle school grade configurations might be useful. For example, a study should be conducted which includes 7-8 schools as well as 6-8 schools and K-8 schools.

This study should be replicated in other geographic locations. This study was restricted to the East Tennessee Region.

This study should be continued in the East Tennessee Region with an emphasis on other variables such as: attendance, discipline problems, and other areas.

Another recommendation is to have a study designed to investigate school size and achievement in the East Tennessee Region.

In regard to school practices for sixth grade students, the researcher recommends that consideration should be given to the following options:

- Administrators and teachers should provide special planning, implementation, and prolonged attention to the transition year for sixth grade students in a 6-8 middle school.

- Administrators and teachers should provide academic instruction for sixth grade students in a 6-8 middle school by two-teacher-teams instead of the traditional four or five-teacher-teams.

- Administrators and teachers should consider leaving sixth grade students in elementary schools.

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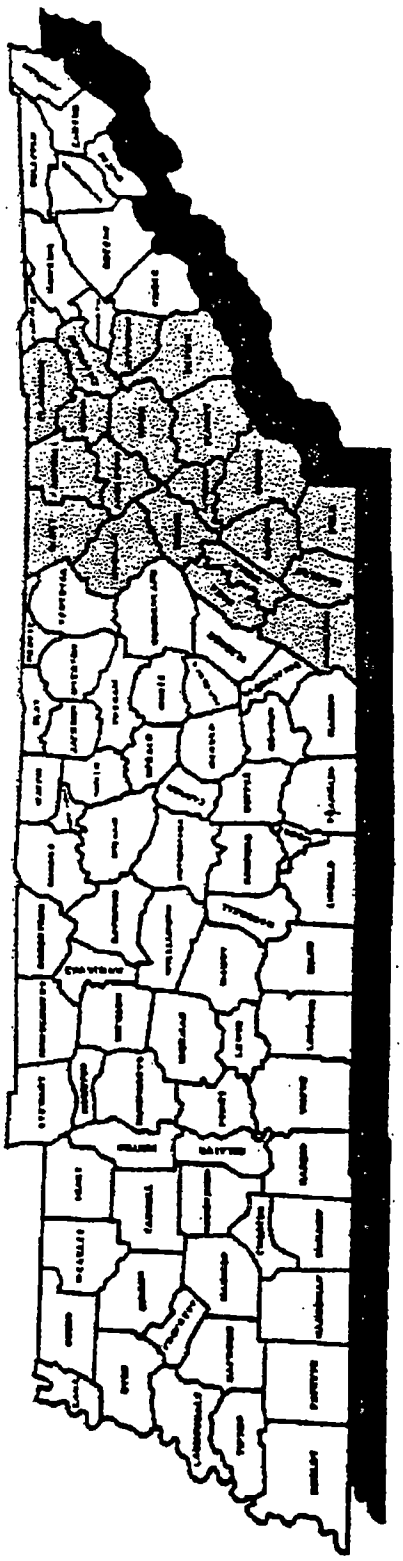
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APPENDICES

Appendix A

Map and School Systems



East Tennessee Regional Office

School Systems

- Alcoa City *
- Anderson County *
- Athens
- Blount County *
- Bradley County
- Campbell County *
- Claiborne County *
- Cleveland City
- Clinton City
- Dayton City *
- Etowah City *
- Grainger County *
- Hamilton County *
- Harriman City
- Jefferson County *
- Knox County *
- Lenoir City *
- Loudon County *
- Maryville City *
- McMinn County *
- Meigs County *
- Monroe County *
- Morgan County *
- Oak Ridge City *
- Oneida Special School District *
- Polk County *
- Rhea County *
- Roane County *
- Scott County *
- Sevier County *
- Sweetwater City
- Union County *
- Tennessee School For The Deaf

* Denotes School Systems, those meeting the criteria, that were included in this study.

Appendix B

Letter of Approval

THE UNIVERSITY OF TENNESSEE
KNOXVILLE

College of Education
Department of Theory & Practice
in Teacher Education
Holistic Teaching/Learning
142 Claxton Addition
Knoxville, Tennessee 37996-3400
(865) 974-3034

MEMORANDUM

To: David Anthony Vaccaro

From: Thomas N. Turner
Chair: Department of Theory & Practice in Teacher Education
IRB Committee

Date: December 15, 1999

Subject: Form A
Title: A Comparative Study of Middle School and K-8 School Value-Added Gains in the Areas of Reading, Language, Math, Science, and Social Studies
PI: David Anthony Vaccaro

The Human Research above project submitted as Form A has been approved by the departmental committee and sent on to the Office of Compliance. If and when you receive approval from that office, you may proceed with the study.

Appendix C

Disclosure Letter and Interview Questions

David A. Vaccaro
916 N. Meadows Blvd.
Knoxville, TN 37938

Disclosure Letter (read to participant)

My name is Dave Vaccaro and I am principal of Norris Middle School in Anderson County. This is a phone survey that deals with principals' perceptions of the value-added assessment system. Information from the phone survey is one component of my doctoral dissertation at the University of Tennessee. The dissertation is a study to see if grade configuration has an effect on value-added gains in the areas of math, reading, language, social studies, and science. Your input is critical. I very much need your help in completing these five survey questions. The phone survey should take about 5-10 minutes to complete.

Your participation in this survey is voluntary and constitutes your sole consent to be a participant in the research project. In order to assure your privacy, the surveys are not in any way coded to identify participants. If you have any questions, call me at (865) 938-8994 or write to me at this return address (read them the above address).

Your time and participation is very much appreciated.

Qualitative Phone Interview Questions

1. What kind of community does your school serve and describe your free and reduced population? Comment on the ability level of your students.

2. How are teachers organized at your school in grades 6, 7, and 8? Estimate these teachers' average years of experience.

3. Briefly categorize or comment on the curriculum and instruction at your school.

4. Describe any preparation your teachers make before their students take the Tennessee Comprehensive Assessment Program (TCAP)/Terra Nova in the spring.

5. How do you feel about the Tennessee Value Added Assessment System?

Higher Gain Schools: Six Responses To Qualitative Phone Interview Questions

Note: The essence of the phone interviews, not the entire conversations, has been reported below.

1. What kind of community does your school serve and describe your free and reduced population? Comment on the ability level of your students.

Free and reduced population responses: 45%, 27%, 91%, 28%, 34%, 68%.

Ability level responses: average, high, average, above average, overall average, below average.

2. How are teachers organized at your school in grades 6, 7, and 8? Estimate these teachers' average years of experience?

Teachers organized responses: teams, teams, self contained, self contained, teams, teams.

Years of experience responses: 18, 15, 10, 23, 10, 15.

3. Briefly categorize or comment on the curriculum and instruction at your school.

Curriculum: pretty good, do well, excellent, very good, excellent, excellent.

Instruction: pretty good, good, excellent, very good, excellent, excellent.

4. Describe any preparation your teachers make before their students take the Tennessee Comprehensive Assessment Program (TCAP)/Terra Nova in the spring.

Preparation: commercial testing(1), look at previous year test results(3), sample test(2), curriculum mapping(1), Dimensions of Learning 4 & 5(1), cover material(1), curriculum designer(1), older students helping younger students in reading(1), making sure TCAP objectives are taught(1),special math program system(2), Accelerated Reader program(1), prime time study club(1).

5. How do you feel about the Tennessee Value Added Assessment System?

Responses: Not overly enthusiastic about it, good assessment of what the teachers have done with the students it's the best of a bad situation, I was afraid of it as a teacher and find it helpful as a principal, good on one hand by pointing out the pattern of learning, not real wild about standardized testing.

Lower Gain Schools: Six Responses To Qualitative Phone Interview Questions

Note: The essence of the phone interviews, not the entire conversations, has been reported below.

1. What kind of community does your school serve and describe your free and reduced population? Comment on the ability level of your students.

Free and reduced population responses: 29%,88%, 91%, 70%, 75%, 87%.

Ability level responses: all levels, below grade level, below average, average, average to above average, below average.

2. How are teachers organized at your school in grades 6, 7, and 8? Estimate these teachers' average years of experience.

Teachers organized responses: teams, teams, self contained, teams, departmental, departmental.

Years of experience responses: 12, 5, 8, 14, 10, 7.

3. Briefly categorize or comment on the curriculum and instruction at your school.

Curriculum responses: 8 of 10, no response, excellent, building on new curriculum, very good, trying to close gaps.

Instruction responses: 9 of 10, not what it ought to be, excellent, building on instruction, very good, consistency needed.

4. Describe any preparation your teachers make before their students take the Tennessee Comprehensive Assessment Program (TCAP)/Terra Nova in the spring.

Preparation responses: commercial testing(4), look at previous year test results(4), sample test(2), curriculum guides(2),reading is the #1 focus(1), promote testing(1), monitor hallways(1), taking sure TCAP objectives are taught(2),new math program(1), supplementary material(1), Accelerated Reader program(1).

5. How do you feel about the Tennessee Value Added Assessment System?

Responses: Doesn't really tell you what the teacher is doing in the classroom, I like the information it gives, Not feel really god about it, I think it is getting to a point where it is effective, I'm not a big fan of value-added, I need more education in it.

Appendix D

1997-99 Mean Gains

1997 K-8 MEAN GAINS

Descriptive Statistics

	N	Minimum	Maximum	Sum	Mean	Std. Deviation
K8.MA.6C	61	2.20	44.90	1140.80	18.7016	9.8546
K8.MA.7C	61	-2.10	53.00	1182.10	19.3787	10.4738
K8.MA.8C	61	-.80	52.40	1187.20	19.4623	10.3039
K8.RE.6C	61	2.90	22.60	885.60	14.5180	4.1128
K8.RE.7C	61	-4.90	30.50	910.70	14.9295	5.7484
K8.RE.8C	61	5.60	42.80	921.50	15.1066	5.5371
K8.LA.6C	61	-12.90	25.90	425.30	6.9721	7.7991
K8.LA.7C	61	-1.00	33.80	946.00	15.5082	7.2227
K8.LA.8C	61	1.50	34.40	884.90	14.5066	6.5253
K8.SS.6C	61	-29.30	11.00	-426.30	-6.9885	7.2926
K8.SS.7C	61	-5.10	50.90	709.50	11.6311	8.8853
K8.SS.8C	61	-30.60	14.30	-394.80	-6.4721	7.9105
K8.SC.6C	61	-16.10	21.10	417.30	6.8410	8.8035
K8.SC.7C	61	-8.40	61.80	1416.90	23.2279	11.0720
K8.SC.8C	61	-33.30	27.90	602.80	9.8820	9.2072
Valid N (listwise)	61					

1997 M. S. MEAN GAINS

Descriptive Statistics

	N	Minimum	Maximum	Sum	Mean	Std. Deviation
MS.MA.6C	54	3.10	41.70	968.60	17.9370	9.1161
MS.MA.7C	54	11.10	40.90	1330.90	24.6463	7.2954
MS.MA.8C	54	.00	34.70	992.40	18.3778	7.7856
MS.RE.6C	54	3.90	28.60	754.90	13.9796	4.8953
MS.RE.7C	54	7.00	23.60	855.10	15.8352	3.7358
MS.RE.8C	54	5.70	18.50	717.40	13.2852	2.3433
MS.LA.6C	54	-5.90	21.60	375.80	6.9593	5.6430
MS.LA.7C	54	5.50	26.30	885.30	16.3944	4.2206
MS.LA.8C	54	2.30	30.30	755.30	13.9870	5.2539
MS.SS.6C	54	-19.30	5.00	-369.70	-6.8463	6.0110
MS.SS.7C	54	1.50	24.50	658.40	12.1926	4.4278
MS.SS.8C	54	-18.60	1.60	-372.30	-6.8944	4.7463
MS.SC.6C	54	-8.90	26.00	451.00	8.3519	8.2265
MS.SC.7C	54	16.90	42.60	1423.10	26.3537	5.1660
MS.SC.8C	54	-16.90	22.80	462.30	8.5611	7.4864
Valid N (listwise)	54					

1998 K-8 MEAN GAINS

Descriptive Statistics

	N	Minimum	Maximum	Sum	Mean	Std. Deviation
K8.MA.6B	54	-15.80	42.10	834.80	15.4593	10.4543
K8.MA.7B	54	-10.50	40.50	684.10	12.6685	10.5275
K8.MA.8B	54	-25.60	57.80	649.20	12.0222	11.6660
K8.RE.6B	54	-11.00	28.30	622.20	11.5222	6.3149
K8.RE.7B	54	-7.80	22.30	592.20	10.9667	5.3598
K8.RE.8B	54	-18.00	18.80	397.80	7.3667	6.0992
K8.LA.6B	54	-10.40	23.60	424.80	7.8667	6.8867
K8.LA.7B	54	-11.60	34.00	669.30	12.3944	7.3491
K8.LA.8B	54	-16.10	35.20	401.40	7.4333	7.9167
K8.SS.6B	54	-28.70	21.10	255.40	4.7296	7.2230
K8.SS.7B	54	-5.50	25.20	666.40	12.3407	6.6854
K8.SS.8B	54	-15.10	38.10	505.20	9.3556	8.9203
K8.SC.6B	54	.30	32.10	859.70	15.9204	7.1422
K8.SC.7B	54	-4.00	42.20	1233.70	22.8463	8.9859
K8.SC.8B	54	-12.50	37.20	745.50	13.8056	8.9608
Valid N (listwise)	54					

1998 M. S. MEAN GAINS

Descriptive Statistics

	N	Minimum	Maximum	Sum	Mean	Std. Deviation
MS.MA.6B	55	1.10	36.60	860.60	15.6473	7.6113
MS.MA.7B	55	-1.80	28.40	789.10	14.3473	6.6642
MS.MA.8B	55	-4.20	27.90	698.70	12.7036	7.1998
MS.RE.6B	55	1.70	22.70	613.70	11.1582	4.5960
MS.RE.7B	55	-.60	17.60	634.20	11.5309	3.6835
MS.RE.8B	55	1.30	20.40	504.50	9.1727	3.7016
MS.LA.6B	55	-2.30	21.00	518.00	9.4182	5.4734
MS.LA.7B	55	1.30	24.40	708.40	12.8800	4.9519
MS.LA.8B	55	-.20	22.40	499.90	9.0891	4.7340
MS.SS.6B	55	-6.90	17.10	286.60	5.2109	5.4319
MS.SS.7B	55	3.80	31.50	791.10	14.3836	5.0860
MS.SS.8B	55	-1.40	17.80	527.20	9.5855	4.8234
MS.SC.6B	55	2.00	29.60	869.60	15.8109	5.8949
MS.SC.7B	55	9.90	39.80	1235.00	22.4545	6.6851
MS.SC.8B	55	-8.80	22.50	773.40	14.0618	5.0456
Valid N (listwise)	55					

1999 K-8 MEAN GAINS

Descriptive Statistics

	N	Minimum	Maximum	Sum	Mean	Std. Deviation
K8.MA.6	53	-8.40	38.50	910.40	17.1774	10.1087
K8.MA.7	53	-12.30	70.20	757.60	14.2943	13.1752
K8.MA.8	53	-2.60	38.10	936.70	17.6736	9.0953
K8.RE.6	53	-3.60	24.40	373.70	7.0509	5.3342
K8.RE.7	53	-1.70	32.10	693.40	13.0830	6.1858
K8.RE.8	53	.20	30.00	623.40	11.7623	6.2751
K8.LA.6	53	-5.50	53.80	516.00	9.7358	9.5921
K8.LA.7	53	-7.60	50.00	424.40	8.0075	9.0350
K8.LA.8	53	-10.40	45.40	644.50	12.1604	8.4929
K8.SS.6	53	-4.30	37.10	765.30	14.4396	8.4733
K8.SS.7	53	-8.60	28.80	379.30	7.1566	7.8217
K8.SS.8	53	-5.80	49.60	636.80	12.0151	8.1331
K8.SC.6	53	-6.80	38.00	678.10	12.7943	8.5928
K8.SC.7	53	.10	52.40	858.50	16.1981	8.8027
K8.SC.8	53	-8.50	38.00	796.90	15.0358	8.2733
Valid N (listwise)	53					

1999 M. S. MEAN GAINS

Descriptive Statistics

	N	Minimum	Maximum	Sum	Mean	Std. Deviation
MS.MA.6	56	.70	30.00	832.60	14.8679	6.8555
MS.MA.7	56	.50	27.10	783.10	13.9839	6.6612
MS.MA.8	56	9.00	29.40	1010.30	18.0411	4.1812
MS.RE.6	56	-8.90	17.60	205.50	3.6696	4.7691
MS.RE.7	56	4.20	20.90	699.10	12.4839	3.5776
MS.RE.8	56	4.80	19.20	696.30	12.4339	3.4053
MS.LA.6	56	-3.70	25.90	413.70	7.3875	5.2720
MS.LA.7	56	-.50	19.30	469.10	8.3768	4.5108
MS.LA.8	56	4.50	22.50	677.60	12.1000	4.2991
MS.SS.6	56	-10.90	29.60	702.31	12.5413	6.5523
MS.SS.7	56	-4.10	21.80	437.20	7.8071	5.1518
MS.SS.8	56	2.40	19.70	662.10	11.8232	3.8212
MS.SC.6	56	-1.70	24.10	606.30	10.8268	6.4493
MS.SC.7	56	1.70	28.30	826.70	14.7625	4.8571
MS.SC.8	56	6.50	25.80	894.00	15.9643	4.7039
Valid N (listwise)	56					

VITA

David Vaccaro was born in Trenton, New Jersey, on October 14, 1947. He is the seventh of eight children born to Millie and Jim Vaccaro. David attended school in Fort Lauderdale, Florida, and he graduated from St. Thomas Aquinas High School in 1965.

In 1969, David graduated from the University of Dayton with a Bachelor of Science degree with a major in Physical Education and a minor in Speech Communications. After teaching two years in Brevard County, Florida, he accepted a graduate assistantship at the University of Tennessee. In 1972, he graduated with a Master of Science degree with a major in Physical Education and a minor in Special Education.

In August of 1972, he accepted a perceptual motor skills position with Anderson County Schools. In 1974, he became the Elementary Physical Education Coordinator. David was appointed Norris Elementary Teaching Principal in 1977. After eight years, he became the Principal of Norris Middle School in 1985. He has been the principal at Norris Middle School for 15 years. In 1986, he became a Career Level III administrator.

In the fall of 1996, he entered the University of Tennessee to pursue the Doctor of Education Degree with a major in curriculum and instruction. He has a special interest in elementary education and he expects to graduate May, 2000.

He is married to Pattie Ragsdale and he has two children, Stephen and Stephanie Vaccaro. His stepson is David Ragsdale.